"EFFECTIVENESS OF APPLICATION OF HOT AND COLD COMPRESS ON BREAST ENGORGEMENT AMONG THE POST NATAL MOTHERS IN POST NATAL WARD, GOVERNMENT RAJAJI HOSPITAL, MADURAI".

M.Sc (NURSING) DEGREE EXAMINATION

BRANCH - III OBESTETRICS AND GYNECOLOGICAL NURSING

COLLEGE OF NURSING

MADURAI MEDICAL COLLEGE, MADURAI -20.

A dissertation submitted to

THE TAMILNADU DR.M.G.R. MEDICAL UNIVERSITY,

CHENNAI - 600 032.

In partial fulfillment of the requirement for the degree of

MASTER OF SCIENCE IN NURSING

APRIL2012

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Approved by Dissertation committee on ……..

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CERTIFICATE

This is to certify that this dissertation titled**,** "**EFFECTIVENESS OF APPLICATION OF HOT AND COLD COMPRESS ON BREAST ENGORGEMENT AMONG THE POST NATAL MOTHERS IN POST NATAL WARD,GOVERNMENT RAJAJI HOSPITAL, MADURAI"** Is a bonafide work done by Mrs.P.Revathi, College of Nursing, Madurai Medical College, Madurai - 20, submitted to the Tamilnadu Dr.M.G.R. Medical University, Chennai in partial fulfillment of the requirements for the award of the degree of Master of Science in Nursing, Branch III, Obstetrics and Gynecological Nursing Under our guidance and supervision during the academic period from 2010—2012.

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"Not by might, not by power but the spirit of god is done"

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ABSTRACT

Objectives: To assess the level of breast engorgement among the post natal mothers in experimental and control group and to evaluate the effectiveness of application of hot & cold compress on breast engorgement among the post natal mothers in experimental group. **Conceptual Frame Work:** Conceptual frame work was developed based on the widenbach’s helping art of clinical nursing theory. **Research Design:** True experimental design- Pre test Post test control group design. **Setting Of Study:** Post natal and caesarean post operative ward at Government Rajaji Hospital, Madurai -20.**Samples:** The study samples are postnatal mothers with breast engorgement who fulfilled the inclusion criteria. **Sample Size:** The total sample size was 60. 30 samples were in experimental group and 30 were in control group. **Sampling Technique:** Simple random sampling by lottery method. **Intervention:** Pre test was done with observational check list for signs and symptoms of breast engorgement both in experimental and control group. Applied alternative hot and cold compresses on engorged breast for 15 -20 minutes and application were replaced every 2-3 minutes three times a day for one day .Post test was done after completion of applications on same day. Both in experimental and control group, data were analyzed using both descriptive and inferential statistical methods.**Results:** The mean posttest breast engorgement of the experimental group was 9.03, which is lower than the mean breast engorgement score of control group 17.63, ‘t’ value was 17.50 which were significant at 0.001 levels. **Conclusion:** The mean post breast engorgement score in experimental group was lower than the mean post test breast engorgement in control group. Application of hot and cold compress was highly effective in terms of reducing breast engorgement.

SECTION – I

PART - A

Demographic data:

1. Age ( )
   a) 18-20 years
   b) 21-25 years
   c) 26-30 years
   d) Above 31 years

2. Education ( )
   a) Informal education
   b) Primary education
   c) Higher secondary education
   d) Collegiate

3 .Religion ( )
   a) Hindu
   b) Muslim
   c) Christian

4 .Living place ( )
   a) Urban
   b) Sub urban
   c) Rural

5 .Type of family ( )
   a) Nuclear
   b) Joint
   c) Extended family

PART – B

Obstetrical Details:

6. No of gravida ( )
   a) Primi
   b) Multigravida

7. Mode of delivery ( )
   a) Normal vaginal delivery
   b) Forceps delivery
   c) Caesarean section
   d) Vacuum delivery

8 .Type of newborn ( )
   a) Pre term
   b) Term

9) Post natal day ( )
   a) First day
   b) Second day
   c) Third day
   d) More than 3 days

10. Initiation of breast feeding ( )
   a) Within ½ hours
   b) Within 1 hour
   c) Within 2 hours
   d) After 2 hours

11. Frequency of feeding ( )

a) Every half an hour
b) Every one hour
c) Every two hours
d) As demand

12. Pre lacteal feeding ( )

a) Not given
b) Once
c) Twice
d) Given for a whole day

13. Duration of feeding ( )

a) Till baby stops feeding
b) For 15 minutes
c) For 10 minutes
d) For 5 minutes

14. Position adopted during feed ( )

a) Sitting
b) Side lying

15. Pattern of breast feeding at each time on ( )

a) One side breast
b) Both breasts

SECTION II

OBSERVATIONAL CHECKLIST FOR SIGNS AND SYMPTOMS OF BREAST ENGORGEMENT

S.No	CRITERIA		PRE TEST SCORE	POST TEST SCORE
1	**Tenderness**	a)Not present b)Firmness of the breast c)Firmness with mild pain d) Firmness with severe pain		
2	**Hardness**	a)Not present b)Around the nipple c)Portion of the breast d)All over the breast		
3	**Warmth**	a)Not present b)Around the nipple c)Portion of the breast d)All over the breast		
4	**Nipple**	a)Protracted b)cracked c)Sore &plugged duct d)Inverted		
5	**Swelling**	a)Not present b)Mild c)Moderate d)Severe		
6	**Shiny**	a)Not present		

S.No	CRITERIA		PRE TEST SCORE	POST TEST SCORE
	appearance	b)Mild c)Moderate d) Severe		
7	**Visible vein**	a)Not seen b)Mild c)Moderate d)severe		
8	**Hard lumps**	a) Not present b) Slight swelling c)Tender lymph node d)Hard lymph node		
9	**Sucking**	a)Adequate b)Satisfactory adequate c)Moderately adequate d) Inadequate		
10	**Latching**	a) No difficulty b)Mild difficulty c)Moderate difficulty d)Severe difficulty		

Scoring Method:

a) Normal - 0
b) Mild - 1
c) Moderate - 2
d) Severe - 3

Total score - 30
Mild engorgement - < 10
Moderate -11 to 20
Severe - 21 to 30

பிரிவு -1

தன்னிலை விபரக்குறிப்பு

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   - இ. 26 – 30 வரை
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   - ஆ. ஆரம்பக்கல்வி
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அ. அமர்ந்த நிலையில்

ஆ. ஒரு பக்கமாக படுத்த நிலையில்

15. தாய்ப்பால் ஊட்டும் முறை [ ]

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ஆ. இருபக்க மார்பிலும்

பிரிவு – II

மார்பக வீக்கத்தின் அறிகுறிகளை பரிசோதனை செய்யும் தீர்வுப்பட்டியல்

வ.எண்	அறிகுறிகள்	மதிப்பீடு சோதனைக்கு முன்	மதிப்பீடு சோதனைக்கு பின்
1.	தொட்டால் வலிக்கும் தன்மை	[ ]	[ ]
	அ. மார்பில் மாற்றமில்லை		
	ஆ. மார்பு கெட்டியாக இருப்பது		
	இ. கெட்டித்தன்மையுடன் கூடிய மிதமான வலி		
	ஈ. கெட்டித்தன்மையுடன் கூடிய அதிகமான வலி		
2.	கெட்டித்தன்மை	[ ]	[ ]
	அ. அறிகுறி இல்லாதிருப்பது		
	ஆ. காம்பைச் சுற்றி கெட்டித்தன்மை		
	இ. மார்பின் ஒரு பகுதியில் கெட்டித்தன்மை		
	ஈ. மார்பின் அனைத்து பகுதிகளிலும் இருப்பது		
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	அ. இல்லாதிருப்பது		
	ஆ. மார்பக காம்பைச் சுற்றி இருப்பது		
	இ. மார்பின் ஒரு பகுதியில் இருப்பது		
	ஈ. மார்பின் அனைத்து பகுதிகளிலும் இருப்பது		
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	அ. சரியாய் இருத்தல்		
	ஆ. பிளவு படுதல்		
	இ. புண்ணாகி இருத்தல்		
	ஈ. உள்நோக்கி இருத்தல்		
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	ஆ. சிறிதளவு வீக்கம்		
	இ. நடுத்தரமாய் வீக்கம் இருத்தல்		
	ஈ. அதிக அளவு வீக்கம்		
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ஆ. சிறிதளவு

இ. நடுத்தரமாக இருத்தல்

ஈ. மார்பின் அனைத்து பகுதிகளிலும் பளபளப்பு இருத்தல்

7. மார்பின் மேல் பகுதியில் கண்ணில்படும்படியான சிரை [ ] [ ]

அ. இல்லாதிருப்பது

ஆ. சிறிதளவு

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ஈ. அதிக சிரமத்துடன்

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ஒப்புதல் அறிக்கை

தேதி:

எனக்கு இந்த ஆய்வைப்பற்றிய முழு விவரம் விளக்கமாக எடுத்துரைக்கப்பட்டது. இந்த ஆய்வில் பங்கு பெறுவதில் உள்ள நன்மைகள் மற்றும் தீமைகள் பற்றி நான் புரிந்து கொண்டேன். நான் இந்த ஆய்வில் தானாகவே முன்வந்து பங்கு பெறுகிறேன். மேலும் எனக்கு இந்த ஆய்வில் இருந்து எந்த நேரமும் விலகிக் கொள்ள முழு அனுமதி வழங்கப்பட்டுள்ளது. என்னுடைய சிகிச்சை ஆவணங்களைப் பார்வையிட்டு அதில் உள்ள விவரங்களை ஆய்வில் பயன்படுத்திக் கொள்ள அனுமதி அளிக்கின்றேன். என்னுடைய பெயர் மற்றும் அடையாளங்கள் ரகசியமாக வைத்துக் கொள்ளப்படும் என்றும் எனக்கு உறுதியளிக்கப்பட்டுள்ளது.

இப்படிக்கு,

PROCEDURE

HOT COMPRESS

Definition:

The application of moist heat over the engorged breast with lint cloth .

Effects:

1. Increases circulation locally.
2. Relieves pain.
3. Relieves congestion.

Things Needed:

1. A basin of hot water (43-46° c), or as hot as can be tolerated.
2. Lint cloth

- One bath towel
- **Procedure:**

1. Explain the procedure and got written consent from the mothers.
2. Place the mother in supine position.
3. Check the temperature of hot and cold water by using bath thermometer.
4. Wring compress from hot water or hot solution. Partially twist the compress cloth holding it on both ends. Dip the compress into the hot water or solution and twist it lightly, pulling the two ends apart, thus squeezing the water out.
5. Apply compress directly on the area to be treated without pressure.
6. Compress must be changed frequently at least every 3 minutes.
7. Continue compress for 15-20 minutes, renewing it every 3 minutes. Keep the water or solution hot at all times during the treatment.
8. At the end of treatment, remove hot compress and dry treated area.

Precaution:

Do not apply hot compress when there is tendency to bleed.

COLD COMPRESS

Definition:

A lint cloth wrung from cold or ice water which may be applied over the engorged breast .

Effects:

1. Relieves pain due to edema or trauma.
2. Prevents and relieves congestion.
3. Constricts blood vessels, decreasing local blood flow.
4. Decreases tendency to bleed due to vaso-constriction.

Things Needed:

1. Lint cloth or any clean piece ot cloth.
2. A basin of ice water, 2/3 full.
3. One bath towel.

Procedure:

1. Explain the procedure and got written consent from the mothers.
2. Place the mother in supine position.
3. Check the temperature of cold water by using bath thermometer.Wring compress cloth from ice water at 10-18 degree c. Be sure it does no drip.
4. Apply snugly on the area to be treated.
5. Change or renew compress every 2-3 minutes.
6. Treatment time: for decongestion—20-30 minutes.
7. At the end of the treatment, dry body part thoroughly with the towel and avoid chilling

Govt Rajaji hospital and Madurai Medical Collage, Madurai 625020.

Proceedings and recommendations of the IRB / IEC meeting held on 31.03.20 11

The Institutional Review Board/ Independent Ethics Committee of the Govt. Rajaji Hospital and Madurai Medical College, Madurai 625020 met on the 31.03.2011 at 12 noon, when the following members were present.----------

1. Dr.S.M.Sivakumar, M.S (Gen. Surgery)	M.S, Govt. Rajaji Hospital, Madurai.	Convener
2. Dr.N.Vijayasankaran, M.Ch (Uro.)	Sr. Consultant Urologist Madurai Kidney Centre, Sivagangai Road, Madurai	Chairman
3. Dr.T.Meena, MD or Dean I/c (MMC)	Professor of Physiology, Madurai Medical College	Member
4. Dr.Moses K.Daniel MD (Gen.Medicine)	Professor of Medicine Madurai Medical College	Member
5. Dr.M.Gobinath, MS (Gen. Surgery)	Professor of Surgery Madurai Medical College	Member
6. Dr.B.K.C.MohanPrasad, M.ch, (Surg. Oncology)	Professor of Surg.Oncology Madurai Medical College	Member -Secy.
7. Shri.M.Sridher, B.Sc.B.L.	Advocate, 623-B.ll.Floor, East II Cross, K.K.Nagar, Madurai.20.	Member
8. Shri.O.B.D.Bharat, B.sc.,	Businessman Plot No.588, K.K.Nagar.Madurai.20.	Member
9. Shri.S.Sivakumar, M. A (Social) M.Phil	Sociologist, Plot No.51 F.F, K.K Nagar, Madurai.	Member

The Committee considers the 45 dissertations / research / study Proposal submitted by PG students / Non Medical students from outside the institution as per agenda. After discussion, the following dissertations I records / study proposals are approved.

Mrs.P.Revathi	Second Batch M.Sc Nursing M.M.C Madurai.	"A Study to evaluate the effectiveness of application of hot and cold compress on breast engorgement among the postnatal mothers in postnatal ward Government Rajaji hospital, Madurai"

Medical superintendent

From

The Principal,

College of Nursing,

Madurai Medical College.

Madurai.

To

The Professor & Head of the Department,

Department of Obstetrics and gynecology,

Government Rajaji Hospital,

Madurai.

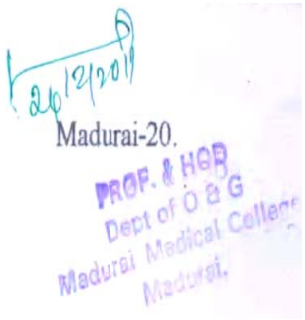
Respected Sir,

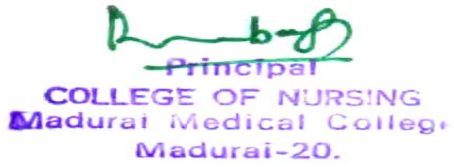
Sub: Requesting permission to allow Mrs.P.Revathi M.Sc (N) I year student of College of Nursing, Madurai Medical College, Madurai, to conduct a Dissertation study at Obstetrics and Gynaecology Department — regarding.

As per the Curriculum recommended by the Indian Nursing Council and The Tamilnadu Dr. M.G.R. Medical University, all the M.Sc. Nursing Students are required to conduct a dissertation study for the partial fulfillment of the course.

Mrs.P.Revathi is a bonafide student of College of Nursing, Madurai Medical College, and doing M.Sc. Nursing I year (Obstetrics and Gynaecology Nursing). She has selected a study topic “A study to evaluate the effectiveness of application of hot and cold compress on breast engorgement among the post natal mothers in Postnatal ward Government Rajaji Hospital, Madurai” for her dissertation. She wants to conduct the study at Post natal ward.I kindly request you to consider her request and allow to conduct the study in your esteemed department.

Thanking You, Yours faithfully





CERTIFICATE OF CONTENT VALIDATION

This is to certify that the tool, prepared by Mrs.P.Revathi II year, M.Sc(N) student of College of Nursing ,Madurai Medical College, Madurai, who has undertaken the study, titled as "**A study to evaluate the effectiveness of application of hot and cold compress on reduction of breast engorgement among the postnatal Mothers"** at Government Rajaji Hospital, Madurai-20.

SIGNATURE:

NAME : Dr C.SHANTHADEVI

DESIGNATION: CIVIL ASST SURGEON
Dept. of Obs. & Gynaecology
Govt. Rajaji Hospital
Madurai.

DATE :

LETTER SEEKING PERMISSION FOR PILOT STUDY

From

P.Revathi,
M.Sc. (N) 1 year,
College of Nursing,
Madurai Medical College,
Madurai —20.

To

PROFESSOR AND HEAD OF THE DEPARTMENT,
DEPARTMENT OF OBSTETRICS AND GYNAECOLOGY,
GOVERNMENT RAJAJI HOSPITAL,
MADURAI.

Through: The proper channel

Respected Madam,

Sub: Requesting permission to conduct pilot study on the topic "A study to evaluatethe effectiveness of application of hot and cold compress on breast engorgement among the post natal mothers in post natal ward, Government Rajaji Hospital, Madurai".

I am First Year M.Sc. Nursing student of College of Nursing, Madurai Medical College, Madurai. In Partial fulfillment of Master Degree in Nursing, I have selected the above topic for the dissertation to submit to the Dr.M.G.R Medical University, Chennai. I request you to kindly give me permission to conduct pilot study in the postnatal ward. Kindly do the needful.

Thanking you,

Madurai-20.

YoursSincerely,

Date:

(P.Revathi)

CERTIFICATE OF CONTENT VALIDATION

This is to certify that the tool, prepared by Mrs.P.Revathi II year, M.Sc(N) student of College of Nursing ,Madurai Medical College, Madurai, who has undertaken the study, titled as "**A study to evaluate the effectiveness of application of hot and cold compress on reduction of breast engorgement among the postnatal Mothers"** at Government Rajaji Hospital, Madurai-20.

K. Thenmozhi

SIGNATURE OF THE EXPERT

NAME:

DESIGNATION: PROFESSOR

DATE:

CERTIFICATE OF CONTENT VALIDATION

This is to certify that the tool, prepared by Mrs.P.Revathi II year, M.Sc(N) student of College of Nursing ,Madurai Medical College, Madurai, who has undertaken the study, titled as "**A study to evaluate the effectiveness of application of hot and cold compress on reduction of breast engorgement among the postnatal Mothers"** at Government Rajaji Hospital, Madurai-20.

SIGNATURE OF THE EXPERT

Head of the Department
Obstetric / Gynac. Nursing

NAME: R. Maryselvathi

DESIGNATION: READER

DATE: 11.4.11.

SARA NURSING COLLEGE
ERODE-DT-638 573
DHARAPURAM

CERTIFICATE OF CONTENT VALIDATION

This is to certify that the tool, prepared by Mrs.P.Revathi II year, M.Sc(N) student of College of Nursing ,Madurai Medical College, Madurai, who has undertaken the study, titled as "**A study to evaluate the effectiveness of application of hot and cold compress on reduction of breast engorgement among the postnatal Mothers"** at Government Rajaji Hospital, Madurai-20.

C.M. HOSPITAL NAMAKKAL Mohanur Road

SIGNATURE:

NAME : Dr. C. SIVALINGAM, M.B.B.S.,M.S.,D.Ortho., General & Orthopaedic Surgeon, REGD. No: 26601, C.M. HOSPITAL, MOHANUR ROAD, NAMAKKAL - 637 001.

DESIGNATION:

DATE :

CERTIFICATE OF CONTENT VALIDATION

This is to certify that the tool, prepared by Mrs.P.Revathi II year, M.Sc(N) student of College of Nursing ,Madurai Medical College, Madurai, who has undertaken the study, titled as "**A study to evaluate the effectiveness of application of hot and cold compress on reduction of breast engorgement among the postnatal Mothers"** at Government Rajaji Hospital, Madurai-20.

SIGNATURE OF THE EXPERT

NAME: P. Shanthi

DESIGNATION: Reader
C.S.I. Jeyaraj Annapackiam college of Nursing, Madurai.

DATE: 21/4/11

CHAPTER -I

INTRODUCTION

The child, offered the mother's breast,
Will not in the beginning grab it;
But soon it clings to it with zest.
And thus at wisdom's copious breasts
you'll drink each day with greater zest.

~Johann Wolfgang von Goethe.

Lactation is used for the breast milk production or formation in mothers after the birth of baby. Lactation starts following delivery or birth of baby, the preparation of effective lactation starts during pregnancy.

Breast milk, more specifically human milk, is the milk produced by the breasts (or mammary glands) of a human female for her infant offspring. Milk is the primary source of nutrition for newborns before they are able to eat and digest other foods; older infants and toddlers may continue to be breastfed, either exclusively or in combination with other foods.

Breast milk can make the difference between healthy growth and malnutrition, between life and death. When it comes to nutrition, the best first food for babies is breast milk.

Without doubt breast milk is the best food for a newborn; nothing comes even closer to provide all the nutrients that the baby will need later in life. Breast milk is much easier to digest then any formula in the market, at the same time it provides protection against infections, prevents future food allergies, helps the growth of healthy teeth, and most important it improves brain development. Studies had shown that breast-fed babies are more intelligent than formula fed babies.

Breastfeeding is the feeding of an infant or young child with milk from a woman's breasts. Babies have a sucking reflex that enables them to suck and swallow milk. With few exceptions, human breast is the best source of nourishment for human infants. There are circumstances under which breastfeeding can be problematic, however, or even in rare instances contraindicated.

The World Health Organization recommends exclusive breastfeeding for the first six months of life, with solids gradually being introduced around this age when signs of readiness are shown. Supplemented breastfeeding is recommended until at least age two and then for as long as the mother and child wish.

To enable mothers to establish and sustain exclusive breastfeeding for 6 months, WHO and UNICEF recommend:

- Initiation of breastfeeding within the first hour of life
- Exclusive breastfeeding – that is the infant only receives breast milk without any additional food or drink, not even water
- Breastfeeding on demand – that is as often as the child wants, day and night
- No use of bottles, teats or pacifiers.

Breastfeeding continues to offer health benefits into and after toddlerhood. These benefits include; lowered risk of Sudden Infant Death Syndrome (SIDS) increased intelligence, decreased likelihood of contracting middle ear infections, cold, and flu bugs, a tiny decrease in the risk of childhood leukemia, lower risk of childhood onset diabetes, decreased risk of asthma and eczema, decreased dental problems, decreased risk of obesity later in life, and decreased risk of developing psychological disorders.

Breastfeeding also provides health benefits for the mother. It assists the uterus in returning to its pre-pregnancy size and reduces post-partum bleeding, as well as assisting the mother in returning to her pre-pregnancy weight. Breastfeeding also reduces the risk of breast cancer later in life.

Breast feeding in known to be the best way to feed infant by providing the psychological and health benefit to both the mother and child. It is therefore considered physiologically, biochemically, immunologically and psychologically suited for this.

However, there has been a general decline in the practice of breast feeding both in terms of prevalence and duration in the past few decades. Death rates in the third world countries are lower among breast fed babies and breast fed babies are having fewer infection than formula fed babies, says Ruth Lawrence. M.D, a spokesman for the American Academy of pediatrics. "And every day between 3000 and 4000 infants die from diarrhea and acute respiratory infection because of inadequate breast milk given to them".

A study has demonstrated breast feeding reduces risk of respiratory illness in infant both in terms of duration and severity. Not only does it reduce respiratory tract infection but it is also associated with lower rates of varieties of infant illness at the community level.

Breastfeeding wards off pneumonia, other diseases - Lahore medical experts believe that breastfeeding serves as a bulwark against diseases and protects children from pneumonia, protein calorie malnutrition (pcm) and other diseases in their later stages of life. Research has shown that colostrums have powerful natural immune and growth factors. Colostrums help combat disease-causing organisms such as bacteria, viruses, yeast and parasites.

Breast engorgement is a physiological condition that is characterized by painful swelling of the breasts as a result of a sudden increase in milk volume, lymphatic and vascular congestion and interstitial edema during the first two weeks following child birth.

Breast engorgement is a normal physiological process with a progression of events not a result of trauma or injury to tissues. Breast engorgement is a very common problem that start affecting the mother in the first two or three weeks after delivery and is more annoying to women with poor skin elasticity.

Engorgement is due to milk excessively filling the breast together with blood and fluid retention in the same area. Usually the breast feels full, hard, tight, tender, painful, and hot to the touch and a fever may develop, the baby may have a hard time to latch on and suck.

Breast engorgement may inhibit the development of successful breastfeeding, leading to early breastfeeding cessation, and is associated with more serious illness, including breast infection. (Mangesi L, Dowswell T, 2010).

Breast engorgement may occur due to insufficient emptying of the breast milk from the mother due to poor transfer of breast milk and incorrect latching or positioning of the baby during the process of suckling. (Lawrence R, 2005).

Breast engorgement occurs in the mammary glands due to expansion and pressure exerted by the synthesis and storage of milk. It can be a cause of mastodynia. Engorgement usually happens when the breasts switch from colostrum to mature milk (often referred to as when the milk "comes in"). However, engorgement can also happen later if lactating women miss several nursing's and not enough milk is expressed from the breasts. It can be exacerbated by insufficient breastfeeding and/or blocked milk ducts. When engorged the breasts may swell, throb, and cause mild to extreme pain.

Engorgement may lead to mastitis (inflammation of the breast) and untreated engorgement puts pressure on the milk ducts, often causing a plugged duct. The woman will often feel a lump in one part of the breast, and the skin in that area may be red and/or warm. If it continues unchecked, the plugged duct can become a breast infection, at which point she may have fever or flu-like symptoms.

To prevent or treat engorgement, remove the milk from the breast, by breastfeeding, expressing or pumping. Gentle massage can help start the milk flow and so reduce the pressure. The reduced pressure softens the areola, perhaps even allowing the infant to feed. Warm water or warm compresses and expressing some milk before feeding can also help make breastfeeding more effective. Some researchers have suggested that after breastfeeding, mothers should pump and/or

apply cold compresses to reduce swelling pain and vascularity even more. One published study suggested the use of "chilled cabbage leaves" applied to the breasts. Non-steroidal anti-inflammatory drugs or paracetamol (acetaminophen) may relieve the pain.

Hot application in the form of hot compresses, hot showers, or hot soaks is poorly researched and has usually been more of a comfort measure to activate the milk ejection reflex, rather than a treatment for edema.

Cold therapy, including cold applications in the form of icepacks, gel packs, frozen bags of vegetables, frozen wet towels,etc., cold application triggers a cycle of vasoconstriction during the first 9 to 16 minutes where blood flow is reduced , local edema decreases , and lymphatic drainage is enhanced.

Sandberg, C.A. (1998), reports on application of cold packs for 20 minutes before each feeding on a small sample of women. Mothers reported increased comfort compare to heat, decreased chest circumference, and no adverse affect on milk ejection or milk transfer.

1.1 .NEED FOR STUDY:

Painful breast engorgement is one of the main physical difficulties experienced by mother in the first week of postpartum. This engorgement is due to inadequate feeding of the baby and mother experience painful swelling tenderness discomfort that again interfere with the feeding pattern of baby and psychological upset to the mother.

Many women experience breast engorgement in the first week of life as their milk supply increases suddenly. When the breast becomes overfull, the blood vessels in the breasts become constricted and the lymphatic system slows down. The result is hard swollen breasts .The breasts are often very sore, the skin is pulled taut and may be shiny and warm, the nipple may become flattened and inelastic . Fortunately, breast engorgement is easily treatable and does not usually long lasting.

The blockage of lactiferous ducts occurs when the breast milk produced in a certain area of the breast does not flow properly, which can take place when breast feeding is infrequent , the breast milk is not being adequately expressed or when there is local pressure , for instance , a tight bra . The baby cannot grasp the breasts properly because they are tensed, engorged, or the nipples are inverted. The problem must be corrected for the babies who cannot keep sufficient grasp of the areola.

The incidence rate of breast engorgement all over the world is 1:8000 and in India it is 1:6500. Engorgement symptoms occur most commonly between days 3 and 5,with more than two-thirds of women with tenderness on day 5 but some as late as days 9-10. Two –third of women experience at least moderate symptoms. More time spent breast feeding in the first 48 hours is associated with less engorgement .The 20% postnatal mothers especially primi Gravida mothers are affected with breast engorgement from 0-4 days of post natal period.

WHO and UNICEF launched the Baby-friendly Hospital Initiative in 1992, to strengthen maternity practices to support breastfeeding. The foundations for the BFHI are the Ten Steps to Successful Breastfeeding described in Protecting, Promoting and Supporting Breastfeeding: a Joint WHO/UNICEF Statement.

The BFHI has been implemented in about 16.000 hospitals in 171 countries and it has contributed to improving the establishment of exclusive breastfeeding world-wide. While improved maternity services help to increase the initiation of exclusive breastfeeding, support throughout the health system is required to help mothers sustain exclusive breastfeeding. WHO and UNICEF developed the 40-hour Breastfeeding Counseling.

As for 2009, the average birth rate for the whole world is 19.95 per year per 100 total populations. In this the number of caesarean deliveries in US rose, accounting for almost one third of the deliveries, an increase of 2% on the previous year. The rate of caesarean section in US has risen by 50% over a decade. The Maternal morbidity incidence during labor and puerperium in rural homes of India has been reported to be 53 percent. The incidence of postpartum morbidities related to breast problem is 18.4 percent.

As per the statistical report of obstetrics and gynecology department at Government Rajaji Hospital on 2011 (January to December) the total number of deliveries for the whole year was 13560.Nearly 1000 deliveries occurred for a month. So the prevalence of developing breast engorgement was high among postnatal mothers.

Moist heat pads helps provide breasts engorgement relief .The heat enables the milk ducts to open for better milk drainage. Mother can take a quick hot shower lettering the water flow directly on to the breasts before feeding her baby.

Cold packs can be used to relieve the breast engorgement .The coolness will decrease the swelling and gives some relief .Should do this procedure after breast feed or in between feeding sessions, because the coolness can inhibit letdown.

Roberts KL, (2002), conducted a study that, women are turning to non-medical treatments for breast engorgement, such as warm or cold compresses, breast massage, or the use of cold cabbage leaves. These non-medical interventions are receiving increasing attention as viable treatment methods as they are more easily available and generally easy to use, convenient and cheap as compared to medical interventions. For example, many women's preferred treatment for breast engorgement is using hot or cold applications. The effect is stronger and quickly. Thus, determining the efficacy of non-medical interventions for treatment of breast engorgement is becoming increasingly important.

Smriti Arora et al, (2008), conducted a study on a comparison of cabbage leaves Vs hot and cold compress in the treatment of breast engorgement. With help of above study, the investigator would like to apply only hot & cold compress on reduction on breast engorgement without giving pain to mothers & resolve the breast engorgement quickly & promote the breast feeding.

When the investigator posted in the postnatal ward, she witnessed may mothers suffered with this problem which hinders the earlier initiation of breast feeding. In order to relieve these discomfort application of heat and cold compresses are beneficial. This method is easy to apply and mothers can do it by themselves. So

the investigator wanted to do the experimental study on effectiveness of hot & cold compress for reduction of breast engorgement. So that the mother can practice effective method which reduce breast engorgement earlier and promote breast feeding.

1.2. STATEMENT OF THE PROBLEM:

"A study to assess the effectiveness of application of hot and cold compress on breast engorgement among the postnatal mothers in postnatal ward, Government Rajaji hospital, Madurai**"**

1.3. OBJECTIVES:

- To assess the level of breast engorgement among the post natal mothers .
- To evaluate the effectiveness of application of hot & cold compress on breast engorgement among the post natal mothers in experimental and control group.
- To compare the pre and post test level of breast engorgement among the post natal mothers in experimental and control group.
- To associate the post test breast engorgement score with selected demographic variables among the post natal mothers in experimental group.

1.4. HYPOTHESES:

H_1 The mean post test breast engorgement score among the post natal mothers is significantly different than mean pre test score in experimental group.

H_2 The mean post test breast engorgement score among the post natal mothers in experimental group is significantly different than the mean post test breast engorgement score of control group.

H_3 There is a significant association between the post test breast engorgement score among the post natal mothers with selected demographic variable in experimental group.

1.5. OPERATIONAL DEFINITIONS:

EFFECTIVENESS:

In this study, it refers to the changes or outcome is the reduction in the breast engorgement among lactating mothers after application of hot & cold compress, measured using check list for signs & symptoms of engorgement.

APPLICATION:

In this study, it refers to applying of hot and cold compress over the engorged breast without covering the areola and nipple for 20mts and three times a day.

HOT COMPRESS:

In this study ,it refers to a form of moist heat application by using lint cloth soaked in warm water over the engorged breast at 43 -46 degree C.

COLD COMPRESS:

In this study. it refers to a form of moist cold application by using lint cloth soaked in ice water over the engorged breast at 10 – 18 degree C.

REDUCTION:

In this study, it refers to decrease in the severity of breast engorgement with a sign of reduction of pain, tenderness and swelling.

BREAST ENGORGEMENT:

In this study, breast engorgement denotes an increase in size of breast and is assessed by four point scale. It includes changes in appearance, heaviness and tenderness of breast identified through inspection and palpation by using checklist for breast engorgement.

POST NATAL MOTHERS:

In this study, it refers to the mother who delivered alive baby by normal vaginal delivery and caesarean delivery, admitted in the postnatal ward GRH, Madurai.

POST NATAL WARD :

In this study, it refers to ward where the post natal mothers underwent caesarean and normal delivery were being admitted and treated .

1.6. ASSUMPTION:

Engorgement may give difficulty for the baby to latch on the breast properly and feed well. Severe engorgement may lead to mastitis.

1.7. DELIMITATIONS:

This study was delimited to

a) Patients who are admitted in Government Rajaji Hospital at postnatal ward during the period of data collection.
b) Patients who applied hot & cold compress for three times a day
c) The data collection period is limited to 4 weeks
d) Samples were selected by simple random using lottery method.

CHAPTER II

REVIEW OF LITERATURE

Literature review is a key step in research. The task of reviewing literature involves identification; select one critical analysis and reporting existing information on topic of interest. The main goal of literature review is to develop a strong knowledge base to carry out research and other non-research scholarly activities in the education and clinical practice settings keeping this in mind the investigator probed into the accessible sources and gained an in depth understanding from the related studies.

The chapter deals with literature review of available literature form published books, text books, and research and non-research articles on the subjects related to the topic of the research study. The available literature was organized under the following headings.

2.1 .PART –I:

The available literature was organized under the following headings.

SECTION A: Literature related to breast engorgement

SECTION B: Literature related to management of breast engorgement

SECTION C: Literature related to application of hot and cold compress.

2.2. PART II – CONCEPTUAL FRAME WORK.

SECTION A: LITERATURE RELATED TO BREAST ENGORGEMENT

Sharron S. Humenick, et al, (2004), investigated the pattern and outcome of breast engorgement among post partum mothers. They founded that for 14 days following birth, 114 breastfeeding mothers rated their level of breast engorgement twice daily, using a six-point engorgement scale. Individual engorgement ratings were plotted by intensity over time. Four distinct patterns of breast engorgement emerged; mothers experienced either a bell-shaped pattern, a multi-modal pattern, a pattern of intense engorgement, or a pattern of minimal engorgement. Characteristics of mothers and infants, and feeding frequency were similar across the four breast engorgement patterns.

West CP, Mc.Neilly AS (2002), investigated on hormones influence on breast engorgement. Prolactin, human placental lactogen (HPL), oestrone, oestradiol and progesterone levels in plasma were measured before and during the first seven days after delivery in women who did not breast feed. The results confirmed the rapid clearance of placental steroids from the circulation after delivery. Plasma prolactin levels remained elevated during the early puerperium and the range of values were the same in non breast-feeding women and a group of breast feeding women. Of the 25 women studied, six developed breast engorgement. No difference in hormonal profiles was found leading to the conclusion that there is no endocrine basis for breast engorgement in non-breast feeding women.

Moon JL, Humenick (2005), conducted a study to identify variables that correlate significantly with breast engorgement and that might be amenable to nursing interventions. Data on the initiation of feeding, frequency of feedings, feeding duration, rate of milk maturation, and supplementation were obtained from 54 women. These variables were found to be significantly correlated with breast engorgement.

Giuliana ER. (2004), conducted a study to document the breast feeding problem encountered in a rural community arid to know the reason for starting top feeds in infants less than 6 months of life. Using the stratified sampling method 420 mother infant pairs was enrolled from 420 villages. The study concluded that maximal onset of breast feeding problem was noted in the first two weeks of neonatal period. Not enough milk was responsible for starting to feed 44(53.6%) cases. 19(13.1%). Mother had other problems like sore nipples, mastitis, breast engorgement, breast abscess and other illness.

HilIpd, Humenick SS etal (2004), conducted a study on breast engorgement during first 14 days of post partum for 114 breast feeding mothers. The study describes breast engorgement for first time and second time vaginal and caesarean delivery breast feeding mothers. Most mothers reported experiencing their most intense engorgement after hospital discharge. Previous breast feeding experience of the mother is a more critical variable than parity in predicting engorgement. Second time breast feeding mothers experienced engorgement sooner and more severely than

did first time breastfeeding mothers, regardless of delivery method. Anticipatory guidance by the care provider is discussed in an effort to enhance the experience of the breastfeeding dyad.

Glover R.(2001)**,** conducted a study to identify and effective preparation method for breast feeding and to develop measurement tools for nipple tenderness and the breast engorgement for t.se in clinical settings. .b subjects served as their own control by preparing one nipple and massaging, one breast either right or left. Nipple tenderness and engorgement were recorded oh 5 point scale. Analysis of the data revealed that tenderness and engorgement were decreased in the prepared and massaged breast.

Storr GB (2001), made a study on engorgement enigma. A search of the literature reveals only a study that deal directly with engorgement. When the relevant research is analyzed, a picture emerges of the causes of breast engorgement, how it can be prevented, and what is the best management, when it occurs. Equipped with these information people providing support to breast feeding mothers can encourage prevention behavior and. assess and educate mother and babies to breast feed naturally without intervention.

De Olivera L.D et al (2006), A randomized clinical trial compared frequencies of exclusive breast feeding and lactating related problems during the first 30 days among 74 mothers who received 30 minutes counseling session on breast feeding technique in the maternity ward with 137 controls. The frequency of exclusion breast feeding among mothers who had received intervention was similar to controls by 7 days (79.7% vs. 82.5 % respective) and 30 days (60.8 % vs. 53.3%) There was no difference between groups in the frequency of sore nipple in the breast engorgement and mastitis and in the quality of breast feeding technique at 30 days. Therefore a single intervention at 30 days was not sufficient to improve breast feeding technique increase exclusive breast feeding rates and decrease the incidence of breast feeding problem during the first month.

SECTION B : LITERATURE RELATED TO MANAGEMENT OF BREAST ENGORGEMENT

Yvonne Meserve (2004), conducted a study to test the effectiveness of milk removal as a method of reducing the discomfort of postpartum breast engorgement in non breastfeeding women. The course of breast involution was followed in 13 women. Minimal engorgement was experienced by 46% of the subjects. A control group (N = 3) who experienced engorgement and followed standard management practice was compared to an experimental group (N = 4) who used a hand-operated pump to relieve engorgement symptoms. The subjects in the experimental group experienced a shorter, more comfortable course of breast involution. There was no evidence of rebound engorgement or lactation stimulation. The results suggest that mechanical removal of milk is an effective way to increase the comfort and decrease the symptoms of engorgement in women who do not breastfeed their infants.

Kee et al., (2001) **,** investigated that Serrapeptase (Danzen), an anti-inflammatory enzyme agent, 10 mg three times daily, was compared to placebo three times daily for 3 days. The Danzen group reported marked improvement in 23% of women compared to only 3% in the placebo group. Overall 86% of the treatment group reported statistically significant marked or moderate improvement compared to 60% for the placebo group. Although the results suggest that the anti-inflammatory agent may be beneficial, the study has the significant limitation that few women in the study were breastfeeding their infant.

Leuig AK, Sauve RS (2006), conducted a study on 'Breast is best for babies'. The study revealed about the management of common breastfeeding issues, such as breast engorgement, sore nipples, mastitis and insufficient milk. Breast feeding should be initiated as soon as after delivery as possible for promoting the breast feeding.

Melnikow J, et al (2006), on Management of common breast-feeding problems. It reviews common breast feeding problems. Prompt identification and treatment of blocked ducts, mastitis and monilial infection of the nipple can prevent complications and allow uninterrupted nursing. This paper reviews ensuring proper position of the infant at the breast and attention to the led- down reflex is the recommended method for prevention and treatment of nipple problem.

Miller V Riordam J etal (2004), A study was conducted on treating post partum breast edema with areola compression in the first two days of post partum that interfered with the early initiation of breast feeding. The mother developed severe generalized fluid retention during labour and early post partum. The result showed that the mother successfully latched her new born on to her breast after successfully being shown areolar compression. Areolar compression reduces the areola resistance by using gently positive pressure on the areola.

Murata et al(2000)**,** Enzyme therapy using a protease complex enteric-coated tablet containing 20,000 units of bromelain and 2,500 units of crystalline trypsin, another anti-inflammatory agent, has been tested (Murata, Hanzawa, & Nomura, 1965). Women with breast swelling or indurations on days 3-5 and pain were given either the protease complex or placebo tablets (approximately 5 tablets per day) for 3 days for a total of 16 tablets. The protease complex was found to be effective in 83% of cases compared to 33% of those receiving placebo.

Miller v et al (2004) , conducted a study on treating post partum breast edema with areola compression in the first 2 days of post partum that interfered with the early initiation of breast feeding .The mother developed severe generalized fluid retension during labour and early post partum. The result showed that the mother successfully latched her newborn to her breast after successfully being shown areolar compression. Areolar compression reduces nipple and areola edema by using gentle positive pressure on the areola

Cotterman, (2004), Reverse pressure softening technique uses gentle positive pressure to soften an area (1-2 inches or so) near the areola surrounding the base of the nipple. The goal is to temporarily move some swelling slightly backward and upward into the breast. Moving the edema away from the areola has been shown to improve the latch of the infant during engorgement. The physiologic basis for this technique is the presence of increased resistance in the subareolar tissues during engorgement.

Marsha Walker, et al (2000), stated that numerous preventive strategies for breast engorgement have been seen over the years including: restricting fluids, prenatal expression of colostrums, prenatal breast massage, postnatal breast massage, binding the breasts, or wearing a tight bra. Mothers experience less severe forms of engorgement with early frequent feedings, self-demand feedings, unlimited sucking times, and with babies who demonstrate correct suckling techniques. Short frequent feeds were shown to increase engorgement in one study, probably because abbreviated feeds (as short as two minutes) did not allow sufficient drainage of the breasts to prevent milk accumulation.

Chiu, Jin-Yu; et al ,(2010), Effects of Gua-Sha Therapy on Breast Engorgement: this study was to determine the effects of two breast care methods, that is, scraping (Gua-Sha) therapy (administered to the experimental group) and traditional breast care (i.e., massage and heating; administered to the control group). A randomized controlled trial was conducted on 54 postpartum women. The Gua-Sha protocol selected appropriate acupoint positions, which included ST16, ST18, SP17, and CV17. Each position was lightly scraped seven times in two cycles. For the control group, we used hot packs and massage for 20 min. Results showed no statistical differences between the two groups at baseline. Body temperature, breast temperature, breast engorgement, pain levels, and discomforting levels were statistically different between the two groups at 5 and 30 min after intervention ($p < .001$). The results of generalized estimating equation analysis indicated that, with the exception of body temperature, all variables remained more significant ($p < .0001$) to improving engorgement symptoms in the experimental group than those in the control group, after taking related variables into account. Our findings provided empirical evidence supporting that Gua-Sha therapy may be used as an effective technique in the management of breast engorgement.

Mangesi L, Dowswell T et al (2010), the aim of the review was to examine treatments used to relieve the symptoms of breast engorgement. We included eight randomized controlled trials involving 744 women. Studies examined a range of different treatments for breast engorgement including acupuncture, cabbage leaves applied to the breasts, cold gel packs, pharmacological treatments and ultrasound. For

some interventions (ultrasound, cabbage leaves, and oxytocin) there was no strong evidence that interventions led to a more rapid resolution of symptoms, as in these studies women tended to have improvements in pain and other symptoms over time whether or not they received active treatment. There was evidence from one study that, compared with women receiving routine care, women receiving acupuncture had greater improvements in symptoms in the days following treatment, although there was no evidence of a difference between groups by six days, and the study was not large enough to be able to detect meaningful differences for other outcomes such as breast abscess. A study looking at cold packs suggested that the application of cold to the breasts does not cause any harm and may be associated with improvements in symptoms, although differences between the control and cold pack groups before treatment started meant that results were difficult to interpret. The overall conclusions of the review are that although some interventions may be promising, there is not sufficient evidence from well designed trials on any intervention to justify widespread uptake of that intervention. More research is needed on treatments for this painful and distressing condition. Kathryn L. Roberts, BNSc, PhD, (2006)**,** The effectiveness of cabbage leaf extract was compared with that of a placebo in treating breast engorgement in lactating women. In a double-blind experiment with a pretest/posttest design, 21 participants received a cream containing cabbage leaf extract, while 18 received placebo cream. The placebo group received equal relief to the treated group, with the two groups showing no difference on all outcome measures. However, mothers perceived both creams to be effective in relieving discomfort. Feeding had a greater effect than the application of cream on relieving discomfort and decreasing tissue hardness. It is therefore recommended that lactation consultants encourage mothers to breastfeed if possible to relieve the discomfort of breast engorgement.

Jean F. Ayers, PsyD,(2004), The Use of Alternative Therapies in the Support of Breastfeeding Surveys show that a significant percentage of Americans are using alternative therapies. Women are more likely than men to seek alternative health care and often use alternative therapies for childbirth-related concerns. Despite abundant anecdotal evidence supporting the efficacy of alternative practice for the enhancement of breastfeeding, surprisingly little corroborating empirical evidence exists in the medical literature. This article reviews the studies pertaining to the use of several alternative techniques for breast feeding women including herbalism, acupuncture,

imagery, massage, diet, and the application of cabbage leaves. Speculations made regarding the psychological value of women's use of alternative treatments during breastfeeding.

Kathryn L. Roberts, RN, PhD, (2006), conducted a study to compared the effectiveness of chilled green cabbage leaves and chilled gel packs in reducing breast engorgement in postpartum mothers. Thirty four lactating women with breast engorgement used chilled cabbage leaves on one breast and chilled gel packs on the other for up to eight hours. Their pain levels were established pre-treatment and compared post-treatment for both conditions. There was no difference in the post-treatment ratings for the two treatments. Mothers reported a statistically significant drop in pain with both treatments; 68 percent obtained relief within one to two hours. The majority of mothers preferred the cabbage leaves.

Kathryn L. Roberts, BNSc, PhD,(2007), This study compared the effectiveness of chilled and room temperature green cabbage leaves in reducing the discomfort of breast engorgement in postpartum mothers. Twenty-eight lactating women with breast engorgement used chilled cabbage leaves on one breast and room-temperature cabbage leaves on the other for a two-hour period. Pre-treatment pain levels were compared with post-treatment levels for both conditions. There was no difference in the post-treatment ratings for the two treatments; mothers reported significantly less pain with both treatments. We concluded that it is not necessary to chill cabbage leaves before use.

Evans K, et al,(2000), stated that Effect of the method of breast feeding on breast engorgement, mastitis and infantile colic. This exploratory study compared the effect of two methods of breast feeding on breast engorgement, mastitis, infantile colic and duration of breast feeding. An opportunity sample of subjects was assigned either to the experimental group (prolonged emptying of one breast at each feed) ($n = 150$) or to the control group (both breasts equally drained at each feed) ($n = 152$) and both groups were followed prospectively to 6 months after delivery. The experimental group had a lower incidence of breast engorgement in the first week (61.4% versus 74.3%; $p < 0.02$) and colic over the first 6 months (12% versus 23.4%; $p < 0.02$). There was no significant difference between the two groups in the incidence of

mastitis over 6 months and the length of breast feeding (16.5 +/- 10.3 weeks versus 17.5 +/- 10 weeks experimental versus control group). The majority of mothers in the experimental group (63%) felt it necessary to offer the second breast at the end of a feed to satisfy their infant's hunger. This study provides data to advise nursing mothers about these two methods of breast feeding.

J Hum Lact.(2001), the study stated that the effectiveness of cabbage leaf extract was compared with that of a placebo in treating breast engorgement in lactating women. In a double-blind experiment with a pretest/posttest design, 21 participants received a cream containing cabbage leaf extract, while 18 received placebo cream. The placebo group received equal relief to the treated group, with the two groups showing no difference on all outcome measures. However, mothers perceived both creams to be effective in relieving discomfort. Feeding had a greater effect than the application of cream on relieving discomfort and decreasing tissue hardness. It is therefore recommended that lactation consultants encourage mothers to breastfeed if possible to relieve the discomfort of breast engorgement.

Snowden HM, et al (2001), to determine the effects of any proposed intervention to relieve symptoms of breast engorgement among breastfeeding women. All randomized and 'quasi-randomized' controlled trials, with or without blinding, that assess the effectiveness of treatments for the alleviation of symptoms in breastfeeding women experiencing engorgement. Data were extracted by one reviewer and verified by a second reviewer. Eight trials, involving 424 women, were included. Three different studies were identified which used cabbage leaves or cabbage leaf extracts;. No overall benefit was found. Ultrasound treatment and placebo were equally effective. Use of Danzen (an anti-inflammatory agent) significantly improved the total symptoms of engorgement when compared to placebo (odds ratio (OR) 3.6, 95% confidence interval (CI) 1.3 - 10.3) as did bromelain/trypsin complex (OR 8.02, 95% CI 2.8-23.3). Oxytocin and cold packs had no demonstrable effect on engorgement symptoms. Cabbage leaves and gel packs were equally effective in the treatment of engorgement. Since both cabbage extract and placebo cream were equally effective, the alleviation in symptoms may be brought about by other factors, such as breast massage. Ultrasound treatment is equally effective with or without the ultra-wave emitting crystal, therefore its effectiveness is more likely to be due to the effect of

radiant heat or massage. Pharmacologically, oxytocin was not an effective engorgement treatment while Danzen and bromelain/trypsin complex significantly improved the symptoms of engorgement. Initial prevention of breast engorgement should remain the key priority.

Snowden HM, et al (2007), a study was conducted to determine the effect of any proposed intervention to relieve symptoms of breast engorgement among breast feeding women. The result showed eight trials involving 424 women. Three different studies were identified which used cabbage, leaves extract, no overall benefit were found. Ultrasound treatment and placebo were equally effective, use of Dazen significantly improved that symptoms of engorgement when compared to Placebo(odds ratio 0R3.6, 9.5% Confidence interval(CI) 1.3- 10.3) and did Bromocriptin/trysin complex (OR 8.02, 95%, CI=28-23.3) oxytocin cold packs had no demonstrable effect on engorgement symptoms.

Humlact ,(2006), conducted a study on the randomized clinical trial compared frequencies of exclusive breast feeding and lactation related problems like breast engorgement during the first 30 days among 74 mothers, who received a 30mts counseling session on breast feeding technique on the maternity ward, and 137 controls. The frequency of exclusive breast feeding among months who had received intervention was similar to controls by 7 days (79.7% s. 32.5% respectively. There was no difference between groups. Therefore a single intervention was not sufficient to increase exclusive breast feeding rates and reduce the incidence of breast feeding problems during the first month.

SECTION C:

STUDIES RELATED TO EFFECTIVENESS OF HOT AND COLD COMPRESSION :

Smriti Arora, et al (2008),Conducted a quasi-experimental comprised a total of 60 mothers;30 in the experimental group and 30 in the control group. The control group received alternate hot and cold compresses and the experimental group received cold cabbage leaf treatment for relieving breast engorgement. The pre- and post treatment scores of breast engorgement and pain were recorded. The data were analyzed using descriptive and inferential statistical methods using the statistical software STRATA. Both the treatments, i.e., hot and cold compress and cabbage

leaves were effective in decreasing breast engorgement and pain in postnatal mothers ($P \leq 0.001$).Cold cabbage leaves and hot and cold compress were both equally effective in decreasing breast engorgement ($P = 0.07$), whereas hot and cold compresses were found to be more effective than cold cabbage leaves in relieving pain due to breast engorgement ($P \leq 0.001$) in postnatal mothers.

Shanthi Margoschis, et al (2010), A quasi experimental study to compare the effectiveness of manual expression of milk and warm bottle application in mothers with breast engorgement. Based on random sampling, 30 mothers were studied in each group. Three scales were used; a five point analog scale was used to assess breast engorgement and another one for assessment of pain. The breast was observed using an observational check list. Group I consisted of 30 mothers with breast engorgement on whom moist compress was applied and then breast milk was manually expressed. Group II consisted of 30 mothers for whom breast milk was expressed with a warm bottle. The comfort of the mother and the degree of breast engorgement relief were assessed before and after the procedure for both the groups. The findings of the study showed that both the methods were effective in reducing the breast engorgement as well as the pain expressed by the mother. On comparing both methods it was found that mothers in group II where breast milk was expressed using a warm bottle had significant reduction of breast engorgement (p value < 0.01) than the mothers in Group I who had a moist compress application and manual expression of milk. Pain was significantly reduced in mothers belonging to Group I than mothers in Group II.

Robson et al Ph.D Nursing,(2001), Conducted a study to investigate the effectiveness of cold applications to the engorged breasts of breastfeeding mothers: . A total of 152 mothers who had Cesarean births participated in the study. Of the total number, 88 mothers developed breast engorgement and were assigned at random to either the intervention or control group. Pretest data were collected in the morning of the first day that the mother developed engorgement. Posttest data were collected in the evening. Mothers in the intervention group wore the 'breast packs and halter' at specified times throughout the day as a means of applying cold to the breasts. Mothers in the control group followed routine hospital procedures. Mothers who wore the cold packs experienced significantly less pain and significantly fewer signs and symptoms

of breast engorgement at the end of the day than mothers who did not wear the cold packs. There were no differences between the two groups in terms of the amount of milk transferred from the breast to the baby. Cold is a safe and effective modality for breastfeeding mothers to use to relieve the pain and degree of breast engorgement. No adverse effects of cold on the amount of milk produced and transferred to the baby during breastfeeding were observed.

Devika .K.Padman (2010), conducted a study on Assessment of effectiveness of cabbage leaves over hot water in the management of breast engorgement among post natal mothers by using experimental pre test post test design. Samples were randomly assigned to two groups with 30 samples each. One group receives cabbage leaves application; other group receives hot water application. The tool used is Storr scale to assess the level of breast engorgement. Pre test was done in both groups .For group I cabbage leaves were applied to the breast for 30 minutes with 3 applications at 30 minutes interval & for group II hot water application were done for 20 minutes with 3 applications at 30 minutes interval. Then post test level of breast engorgement assessed after an hour of 3rd application in both groups. After the study the researcher identified the effectiveness of application of cabbage leaves over hot water in the management of breast engorgement.

PART II

2.2. CONCEPTUAL FRAME WORK :

Conceptual models are made up of concepts ,which are words describing mental images of phenomena and proportions which are statements about concepts .It provides a schematic representation of some relationship among phenomena.

Conceptual framework adopted in the present study was modified Widenbach's helping art of clinical nursing theory (1964).

According to this theory, nursing practice consist of 3 steps which include,

Step I - Identifying the need for help.

Step II- Ministering the needed help.

Step III - Validating that the need for help was met.

Step I: Identifying the need for help

It involves determining the need for help. The investigator identified the postnatal mothers are suffering from breast engorgement and there is a need to reduce the level of breast engorgement.

Step II: Ministering the needed help

This refers to the provision of required help for the identified need. It has two components;

I) Prescription

II) Realities

Prescription

The plan of care to achieve the purpose. In this the investigator assessed the level of breast engorgement among postnatal mothers by using check list for signs and symptoms of breast engorgement following by application of hot and cold compress.

Realities:

The factors that come into play in a situation involving nursing action. It includes the following factors.

Agent	: The Investigator
Recipient	: Post natal mothers with breast engorgement
Goal	: Reduction on breast engorgement
Means and activities	: Hot and cold compression
Framework and Facilities	: Hospital.

Step III: Validating that the need for help was met

It refers to the collection of evidences that shows the level of breast engorgement among post natal mothers .The validation was done by analyzing the findings according to the categories, level of breast engorgement as no breast engorgement, mild, and moderate and severe breast engorgement.

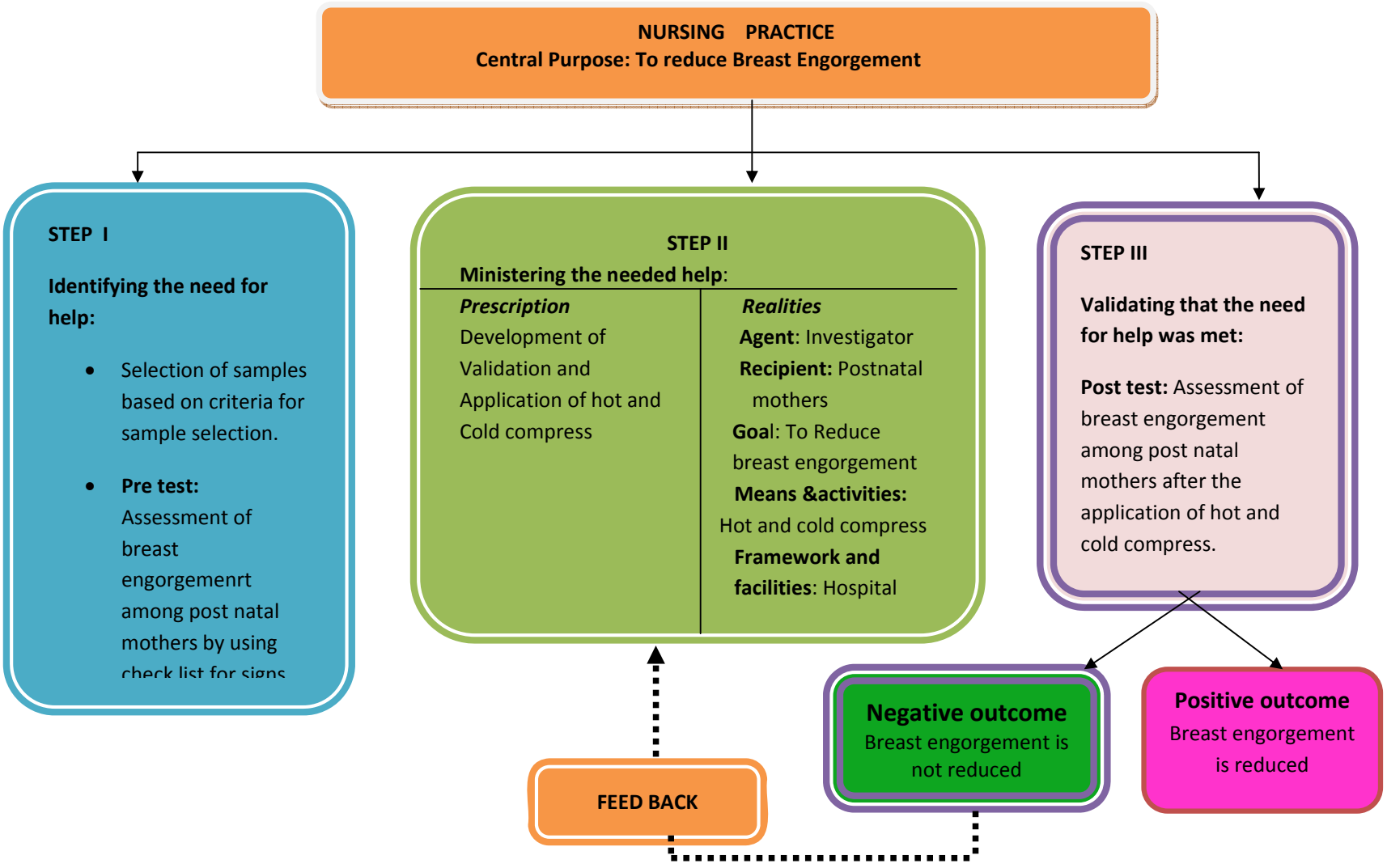


Figure: 1. MODIFIED WIEDEN BACH'S HELPING ART OF CLINICAL NURSING THEORY

CHAPTER III

RESEARCH METHODOLOGY

Research methodology provides a brief description of the different methods adopted by the investigator the study. Research methodology includes research approach, research design, variables, the setting, the population, sample, sample size, sampling technique and criteria for sample selection, description of the tool, validity and reliability of the tool, intervention, pilot study and data gathering process, plan for data analysis and the protection of human subjects.

3.1 RESEARCH APPROACH

A research approach tells the researcher from where the data is to be collected , what to collect and analyses ,then it also suggests the possible conclusion and helps the researchers in answering specific research in a most accurate and efficient way possible.(Rose Grippa Gotehery Lucerol,1994).

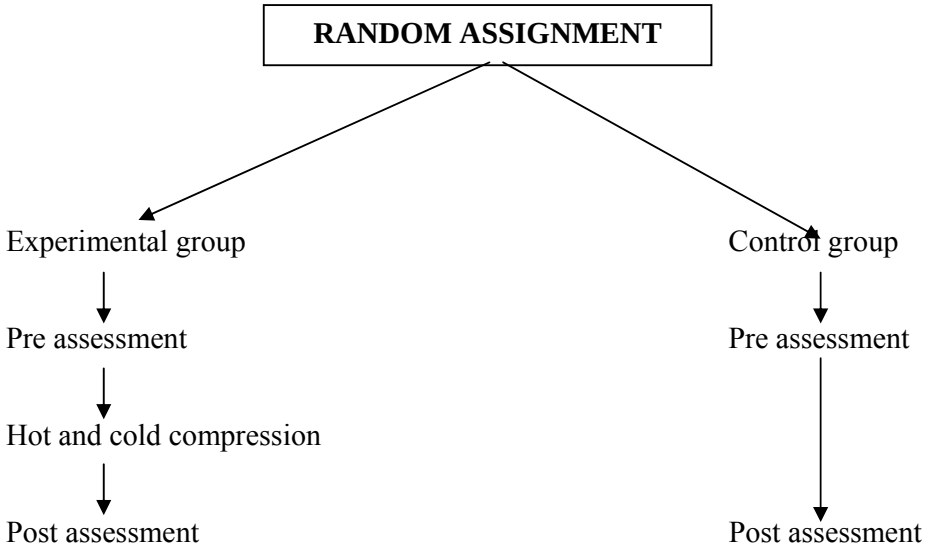
Quantitative approach is the use of scientific research methods and procedures to evaluate a programme, treatment, practice, or policy (Bigman, 1961).

Quantitative approach is used in the study.

3.2 .RESEARCH DESIGN

The research design used for this study is a true experimental Pretest-Posttest Control Group Design ,in that there is a degree of randomization, use of a control group, and therefore greater internal validity.

Figure: 2 SCHEMATIC REPRESENTATION OF RESEARCH DESIGN



EXPERIMENTAL GROUP:

Postnatal mothers with breast engorgement are randomly selected in the caesarean and postnatal ward. The intervention was given for 15 -20 minutes.

CONTROL GROUP:

Postnatal mothers who have not received hot & cold compress when they have breast engorgement.

3.3. RESEARCH VARIABLES

Independent variable : Application of hot and cold compression.

Dependent variable : Breast engorgement of post natal mothers

3.4. SETTING OF THE STUDY

This study was conducted at postnatal and caesarean post operative ward in obstetrics and gynecology department at Government Rajaji Hospital, which is situated at Goripalayam, Madurai -20. It is a 750 bedded department. Data was collected from postpartum Wards having bed strength of 75 and post operative caesarean wards having bed strength of 50. Average of 200 patients gets admitted every week in those wards.

3.5. STUDY POPULATION;

Population refers to the entire set of individuals having some common characteristics and it is important to make distinction between target and accessible population.

TARGET POPULATION:

Target population refers to the population that researcher wishes to make generalization .In this study the target population was postnatal mothers with breast engorgement.

ACCESSIBLE POPULATION:

The accessible population was postnatal mothers with breast engorgement who were admitted in postnatal ward at obstetrics and gynecology department, Government Rajaji Hospital, Madurai.

3.6.SAMPLE

Sample is set of element that makes up the population. The study samples are postnatal mothers with breast engorgement who fulfilled the inclusion criteria.

3.7. SAMPLE SIZE

The total sample size was 60. Thirty samples were selected for experimental group and thirty samples were selected for control group.

3.8. SAMPLING TECHNIQUE

Sampling is a process of selecting a portion or subset of the designated population to represent the entire population (Geri Haber, 2006). Simple Random Sampling is a subset of a statistical population in which each member of the subset has an equal probability of being chosen.

Simple random sampling was done by using lottery method. Randomization helps for the chance of participation for all. Odd numbers have been assigned for experimental group and even numbers for control group. Sample collected from the caesarean post operative ward and post natal ward after seeing the records maintained by the ward staff ,the breast engorgement mothers were identified .The investigator

asked the mother to pick up the lot and if the number was odd, the mother was selected for experimental group ; if it is the even number , the mother was considered as control group .The same method was followed in the post natal ward .

3.9. CRITERIA FOR SAMPLE SELECTION

INCLUSION CRITERIA

1. Postnatal mothers with breast engorgement
2. Mothers who can speak and understand Tamil / English
3. Mothers who were willing to participate in the study

EXCLUSION CRITERIA

1. Mothers who are physically and psychologically ill.
2. Mothers receiving lactation suppressants
3. Mothers with infection in the breasts, breast abscess, mastitis, broken skin of breasts, bleeding or cracked nipples.

3.10.DEVELOPMENT AND DESCRIPTION OF TOOL:

The tool is developed after extensive review of literature , internet search and discussion with experts in order to develop guidelines for providing hot and cold applications and duration of intervention , observational check list for signs and symptoms of breast engorgement, structured questionnaire for demographic variables were developed. Demographic data and obstetrical data were obtained from the postnatal mothers.

SECTION I

PART - A : DEMOGRAPHIC DATA:

It includes age, education, religion, living place and type of family.

PART – B: POST NATAL FACTORS:

It includes No of gravida, mode of delivery , type of newborn ,post natal day, initiation of breast feeding , frequency of feeding ,pre lacteal feeding , duration of feeding ,position adopted during feed , use of brassiere , pattern of breast feeding.

SECTION II It consists of observational check list for signs and symptoms of breast engorgement.

3.11. SCORING PROCEDURE;

To note the engorgement level among post natal mothers the observational check list was used and comprised of 10 items, each item has classified as normal, mild, moderate and severe level based on signs and symptoms. The total score was given as 30.

a. **Normal 0**
b. **Mild 1**
c. **Moderate 2**
d. **Severe 3**

The level of breast engorgement classified as follows;

< 10 = Mild

11–20= Moderate

21-30 = Severe

3.12. TESTING OF THE TOOL

VALIDITY

Validity of the tool was assessed using content validity. Content validity was determined by experts from nursing and Medical. They suggested certain modifications in tool. After the modifications they agreed this tool for assessing effectiveness of application of hot and cold compress on reduction of breast engorgement among the postnatal mothers.

RELIABILITY

Reliability of the tool was assessed by using test retest method. The event was observed by the researcher and other person at the same time and recorded the observation according to the check list. Three samples for experimental group and three samples for control group were selected and the instrument was applied in the same manner. After pilot study score was assessed using test and retest method and calculated correlation coefficient was 0.85. This correlation coefficient is very high and it is good tool for assessing the postnatal mothers with breast engorgement.

3.13. PILOT STUDY

In order to test the feasibility of the study, pilot study was conducted among six mothers in the same manner like a final study. Among six mothers, three were assigned to experimental group and three were in control group. Data was analyzed and the findings revealed that the study was feasible.

3.14. DATA COLLECTION PROCEDURE

The formal permission was obtained from the head of the Department of Obstetrics and gynecology in Government Rajaji Hospital, Madurai.

The data collection procedure was done for four weeks. Every day average of three to four subjects were selected who were satisfying the inclusion criteria.

Samples were selected using simple random sampling by lottery method and add number assigned to experimental group and even number assigned to control group. On the day of data collection the researcher introduced herself to the mothers and got written consent from them.

The control group was assessed for breast engorgement by using check list for breast engorgement, no application of hot and cold compress carried out. In experimental group pre test was done to assess the breast engorgement using check list . cold compression was applied over engorged breast at 10-18 degree celcious for 2-3 minutes then apply hot compress over engorged breast at 43-46 degree celcious for 2- 3 minutes then alternatively place the compressions at every 2 -3 minutes for 15-20 minutes . The total duration of intervention was 30 minutes. Both

the treatments were performed three times a day at three hours interval for one day. After three applications post test was done by using check list and data recorded. Thus the data collection was completed within the stipulated period.

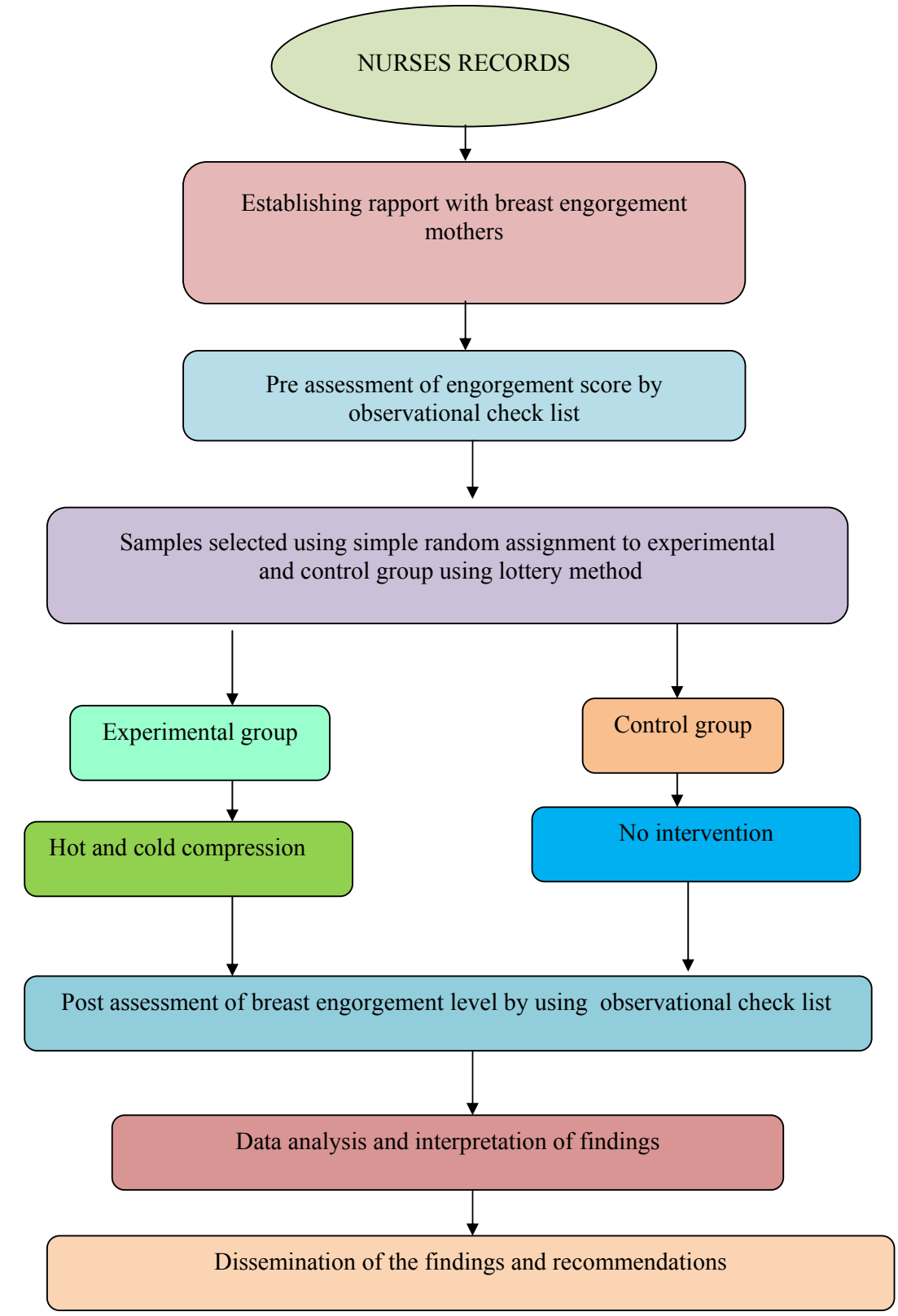
3.15. PLAN FOR DATA ANALYSIS

The data analysis was done according to the objectives of the study. Both descriptive and inferential statistics were used to analyze the data.

3.16. PROTECTION OF HUMAN SUBJECTS

The proposed study was conducted after the approval of dissertation committee of the college. Permission was obtained from the Dean, Madurai Medical College, Madurai. Oral consent of each subject was obtained before starting the data collection. Assurance was given to them that the anonymity of each individual would be maintained.

Figure: 3 SCHEMATIC REPRESENTATION OF THE STUDY



CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals about the statistical analysis and interpretation of the data collected. Analysis is a method for rendering quantitative, meaningful and intelligible information, so that research problem can be studied and tested including the relationship between the variables.

The data collection deals with the demographic variables, obstetrical details, check list for signs and symptoms of breast engorgement. The data were assembled, analyzed and tested for their significance using appropriate statistical methods and the results are presented below.

The analysis used for this study was descriptive and inferential analysis.

ORGANISATION OF THE DATA:

Section -A:	Description of Demographic profile in experimental and control group.
Section -B:	Assessment of post natal factors for breast engorgement among experimental and control group.
Section – C:	Assessment of pre test breast engorgement among the post natal mothers in experimental and control group.
Section – D:	Assessment of post test breast engorgement among the post natal mothers in experimental and control group
Section – E:	Comparison of breast engorgement assessment scores between experimental and control group.
Section – F:	Associate the post test level of breast engorgement with selected demographic variables in experimental group.

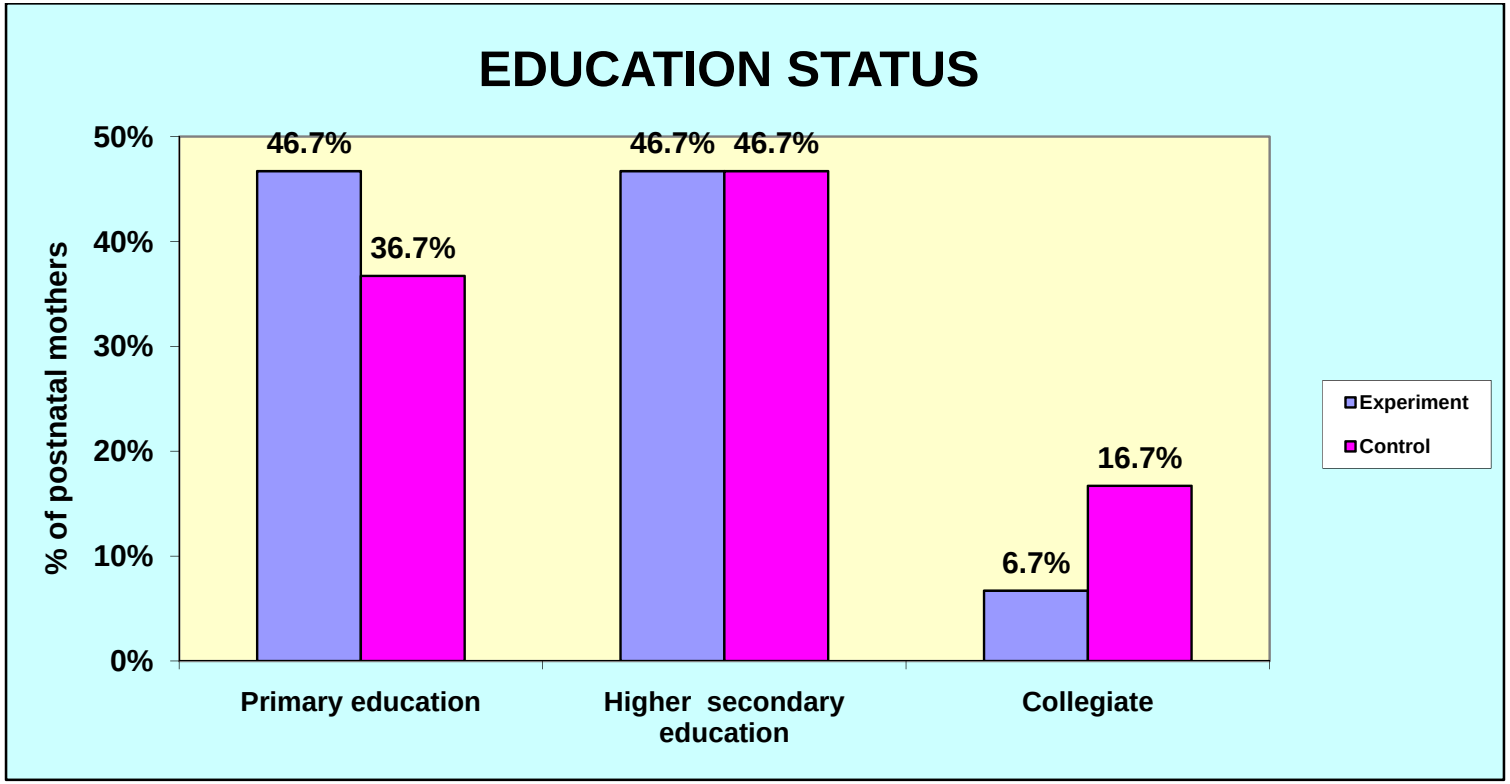
SECTION -A

Table 1: DEMOGRAPHIC PROFILE

DEMOGRAPHIC VARIABLES		GROUP			
		EXPERIMENT		CONTROL	
		n	%	n	%
Age	18 -20 yrs	5	16.7%	6	20.0%
	21 -25 yrs	9	30.0%	9	30.0%
	26 -30 yrs	13	43.3%	12	40.0%
	>30 yrs	3	10.0%	3	10.0%
Religion	Hindu	15	50.0%	13	43.3%
	Muslim	5	16.7%	6	20.0%
	Christian	10	33.3%	11	36.7%
Living place	Urban	10	33.3%	7	23.3%
	Sub urban	11	36.7%	15	50.0%
	Rural	9	30.0%	8	26.7%

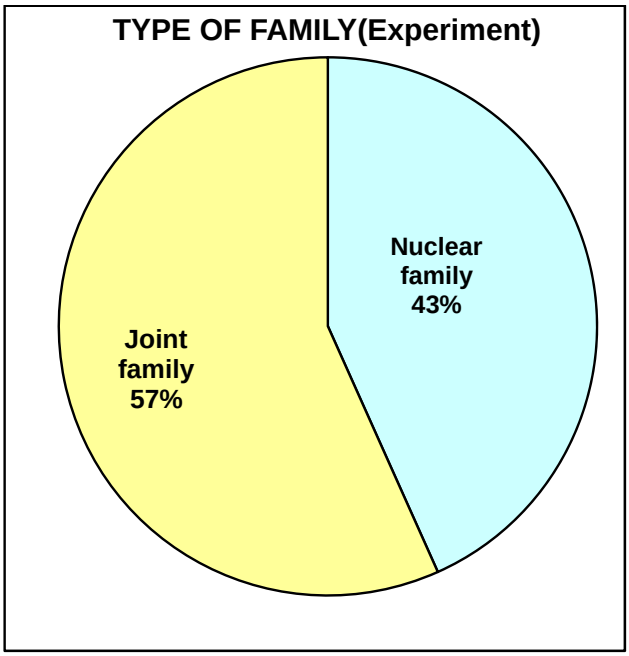
The above table shows that 43.3 % of postnatal mothers in experimental group & 40 % in control group belongs to age group 26- 30 years. Higher frequency of postnatal mother 50.0% in experimental group and 43.3% in control group were Hindu. Higher frequency of postnatal mothers 50.0% in control group and 36.7% in experimental group were living in suburban area.

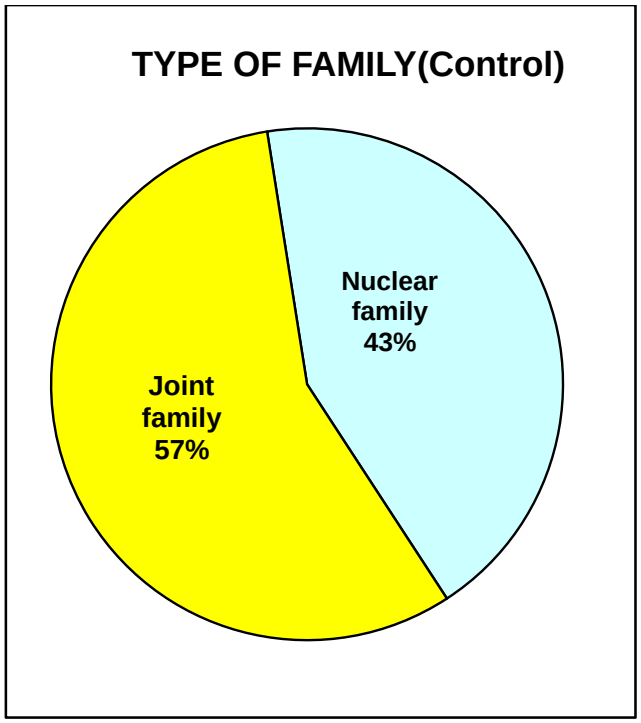
FIGURE – 4 : DISTRIBUTION OF POST NATAL MOTHERS ACCORDING TO THEIR EDUCATIONAL STATUS



The above figure shows that majority of post natal mothers 46.7% both in experimental and control group have completed higher secondary education.

FIGURE – 5 : DISTRIBUTION OF POST NATAL MOTHERS ACCORDING TO THEIR TYPE OF FAMILY





The above figure shows that both in experimental and control group 57% of postnatal mothers belongs to joint family and 43% of belongs to nuclear family.

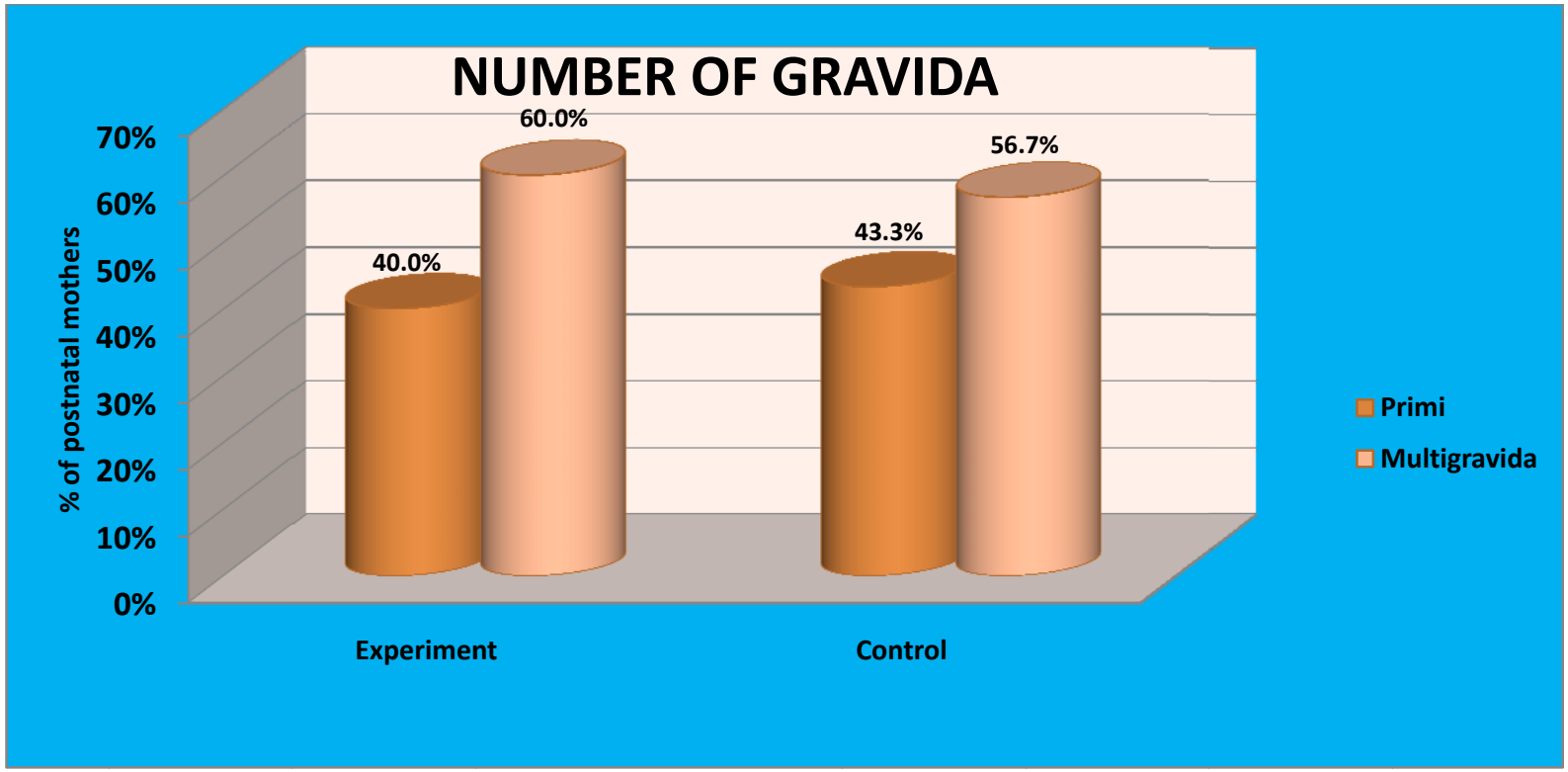
SECTION - B

TABLE 2: OBSTETRICAL DETAILS

OBESTETRICAL DETAILS		GROUP			
		EXPERIMENT		CONTROL	
		n	%	n	%
Type of newborn	Pre Term	4	13.3%	8	26.7%
	Term	26	86.7%	22	73.3%
Post natal day	Third day	19	63.3%	23	76.7%
	> 3 days	11	36.7%	7	23.3%
Initiation of breast feeding	Within 1 hours	3	10.0%	2	6.7%
	Within 2 hours	8	26.7%	7	23.3%
	After 2 hours	19	63.3%	21	70.0%
Frequency of feeding	Every one hour	4	13.3%	1	3.3%
	Every two hours	16	53.3%	12	40.0%
	As demand	10	33.3%	17	56.7%
Pre lacteal feeding	Not given	15	50.0%	19	63.3%
	Once	12	40.0%	11	36.7%
	Twice	3	10.0%	-	-
Position adopted during feed	Sitting	18	60.0%	10	33.3%
	Side lying	12	40.0%	20	66.7%

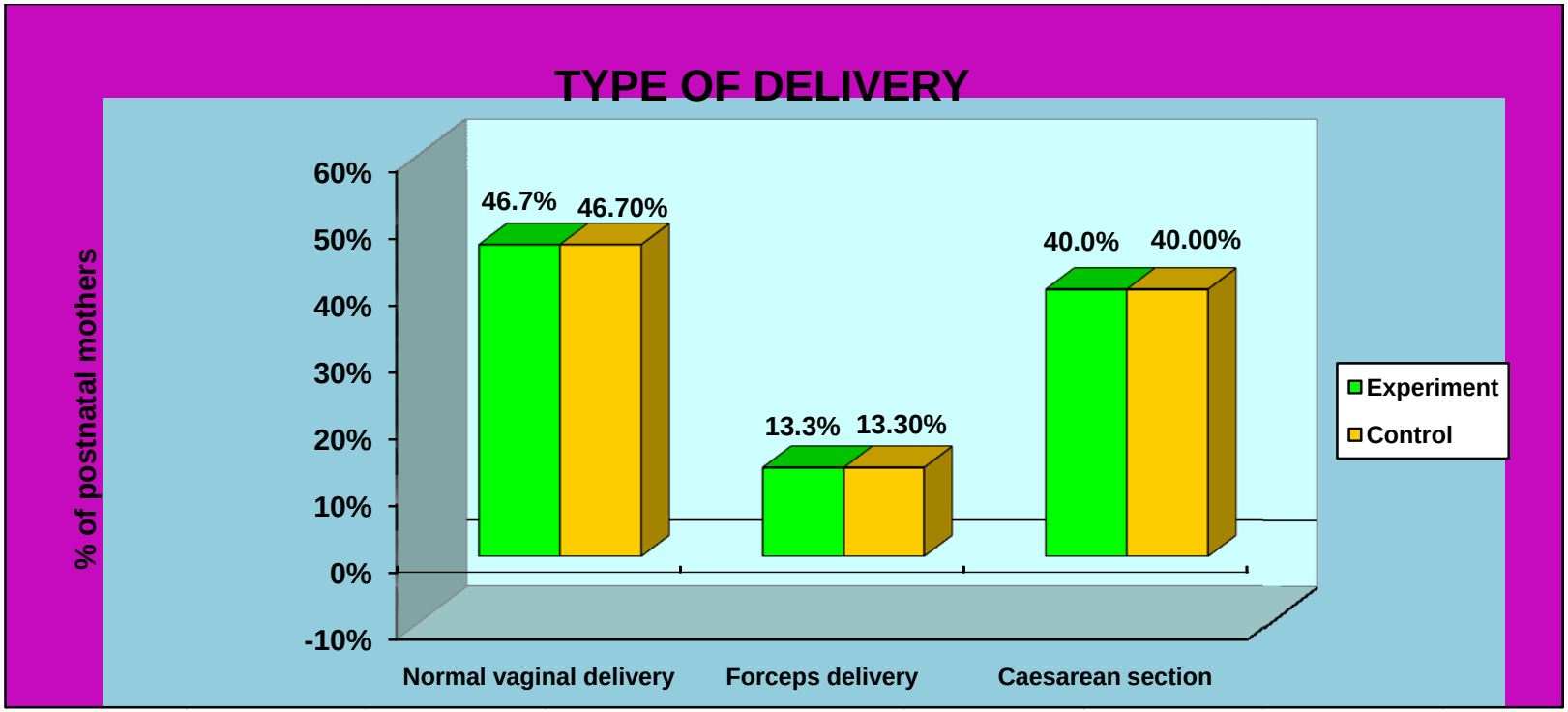
The above table shows that majority of postnatal mothers 86.7% in experimental group and 73.3% in control group have delivered term baby. More than half proportion of postnatal mothers 63.3% in experimental group and 76.7% in control group were developed breast engorgement on third day. More than half the proportion of postnatal mothers 63.3% in experimental group and 70% in control group had started feeding after two hours of birth. Majority of postnatal mothers 53.3% in experimental group had fed their babies every 2 hours and 56.7% of postnatal mothers in control group had fed their babies as demand. Majority of postnatal mothers 50.0% of experimental group and 63.3% of control group not given the pre lacteal feeding. More than half proportion 60.0% of postnatal mothers in experimental group maintained sitting position during feeding and 66.7% in control group maintained side lying position during feeding.

FIGURE – 6 : DISTRIBUTION OF POST NATAL MOTHERS ACCORDING TO THEIR NUMBER OF GRAVIDA



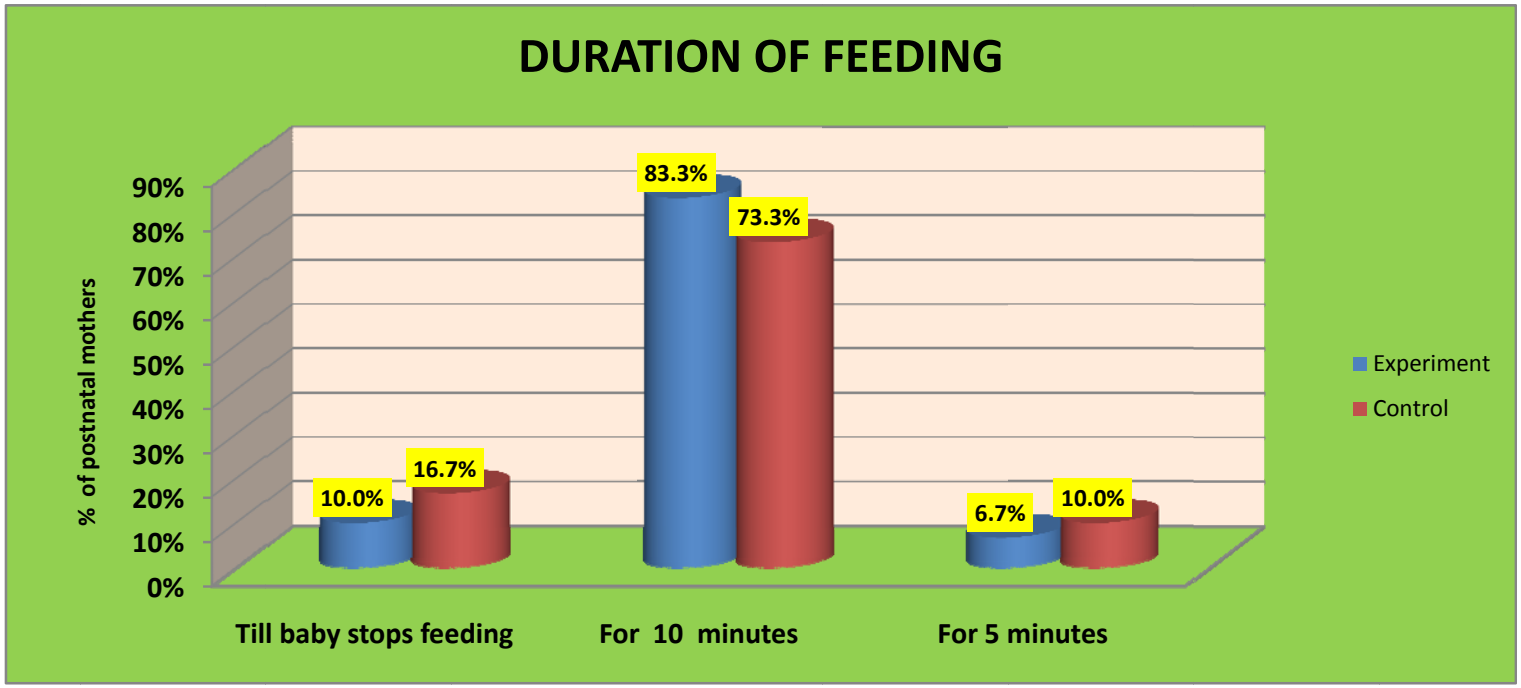
The above figure shows majority of the mothers 60% in experimental groups 56.7% in control group were primi mothers.

FIGURE – 7 : DISTRIBUTION OF POST NATAL MOTHERS ACCORDING TO THEIR TYPE OF DELIVERY



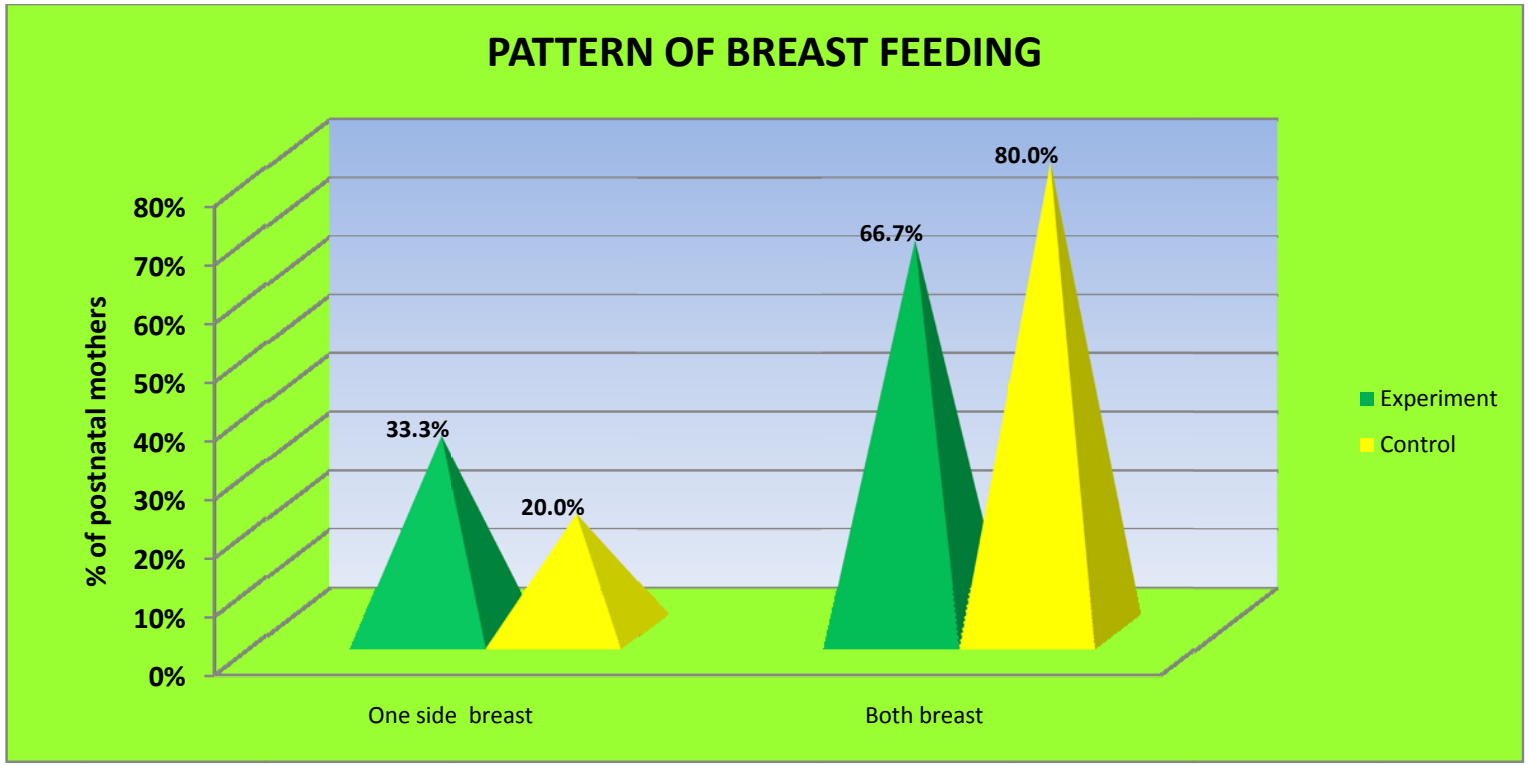
The above figure shows that both in experimental and control group 46.7% of post natal mothers had normal vaginal delivery and 40% of mothers had caesarean section.

FIGURE – 8 : DISTRIBUTION OF POST NATAL MOTHERS ACCORDING TO THEIR DURATION OF FEEDING



The above figure shows higher proportion of post natal mothers 83.3% in experimental group and 73.3% in control group given feeding for 10 minutes .

FIGURE – 9 : DISTRIBUTION OF POST NATAL MOTHERS ACCORDING TO THEIR PATTERN OF BREAST FEEDING



The above figure shows majority of post natal mothers 66.7% in experimental group and 80% in control group fed their babies in both breast at each feeding.

SECTION – C

Table 3:

PRETEST BREAST ENGORGEMENT SCORE AMONG THE POST NATAL MOTHERS IN EXPERIMENTAL AND CONTROL GROUP

GROUP	No. of postnatal mothers	Min- max Breast engorgement score	Mean ± SD	% of breast engorgement
EXPERIMENTAL	30	0 -30	20.57 ± 2.54	68.6%
CONTROL	30	0 -30	20.07 ± 2.58	66.9%

Table no 3 shows assessment of breast engorgement score before application of hot & cold compress in experimental and control group. On an average, postnatal mothers in experimental group having 20.57 breast engorgement score out of 30 in pretest and in control group having 20.07 breast engorgement score out of 30 in pretest or we can say, postnatal mothers have 68.6%breast engorgement score in experimental group and 66.9% of breast engorgement score in control group.

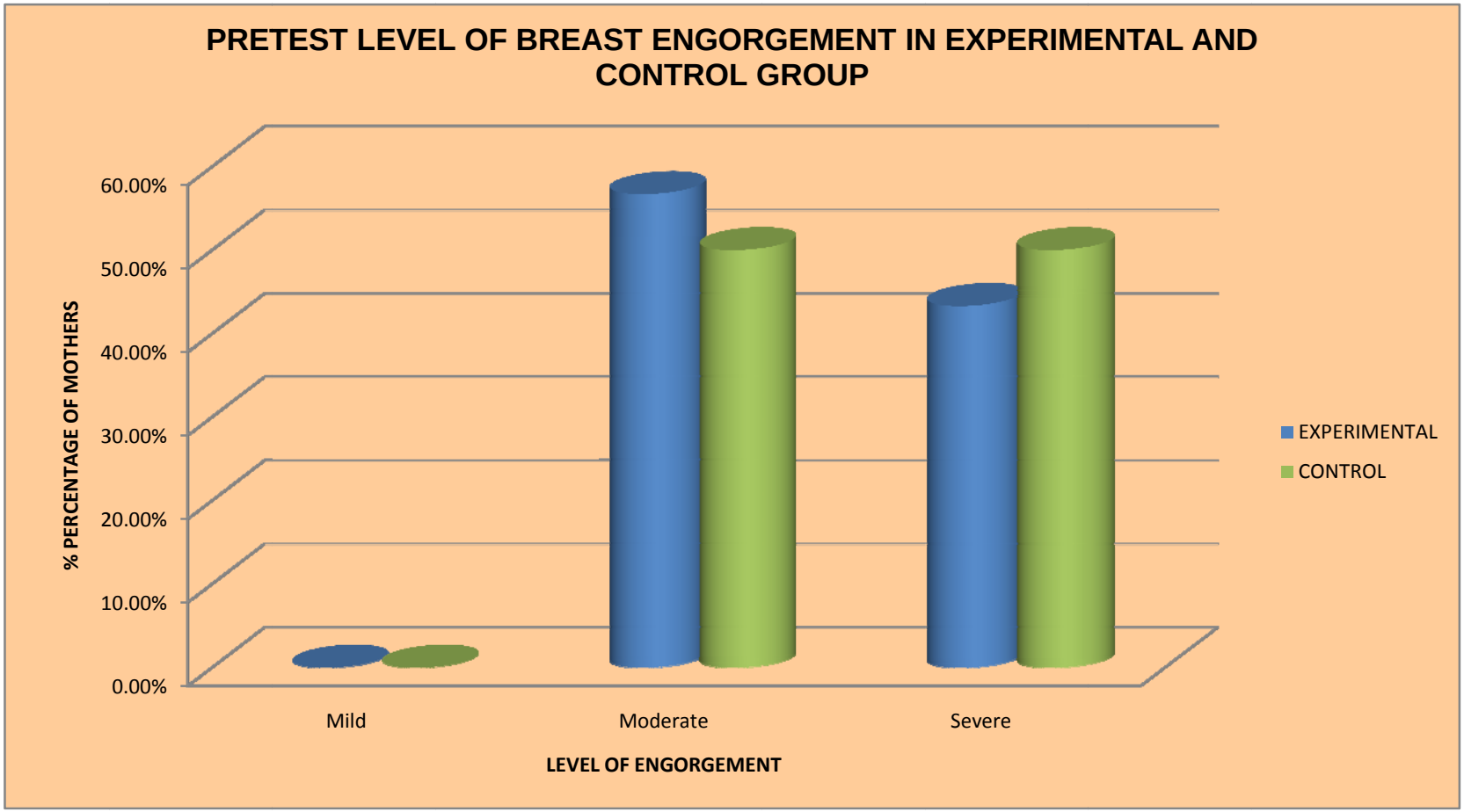
Table 4:

PRETEST LEVEL OF BREAST ENGORGEMENT ASSESSMENT SCORE

Level of Breast engorgement	Group			
	Experimental		Control	
	n	%	n	%
Mild	0	0.0%	0	0%
Moderate	17	56.7%	15	50.0%
Severe	13	43.3%	15	50.0%
Total	30	100.0%	30	100.0%

In experimental group before hot & cold application, 56.7% of mothers are having moderate level of breast engorgement and 43.3% of them having severe level of breast engorgement. In control group 50.0% of postnatal mothers having moderate level of breast engorgement and 50.0% having severe breast engorgement.

Figure :10


PRETEST LEVEL OF BREAST ENGORGEMENT IN EXPERIMENTAL AND CONTROL GROUP
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
% PERCENTAGE OF MOTHERS
Mild
Moderate
Severe
LEVEL OF ENGORGEMENT
EXPERIMENTAL
CONTROL

SECTION - D

Table 5:

POSTTEST BREAST ENGORGEMENT SCORE IN EXPERIMENTAL AND CONTROL GROUP

GROUP	No. of postnatal mothers	Min- max breast engorgement score	Mean ± SD	% of breast engorgement
EXPERIMENTAL	30	0 -30	9.03 ± 1.19	30.1%
CONTROL	30	0 -30	17.63 ± 2.41	58.7%

Table no 5 shows assessment of breast engorgement score after application of hot & cold compress in experimental and control group. On an average, postnatal mothers in experimental group having 9.03 breast engorgement score out of 30 in posttest and in control group having 17.63 breast engorgement score out of 30 in posttest or we can say, postnatal mothers have 30.1%breast engorgement score in experimental group and 58.7% of breast engorgement score in control group.

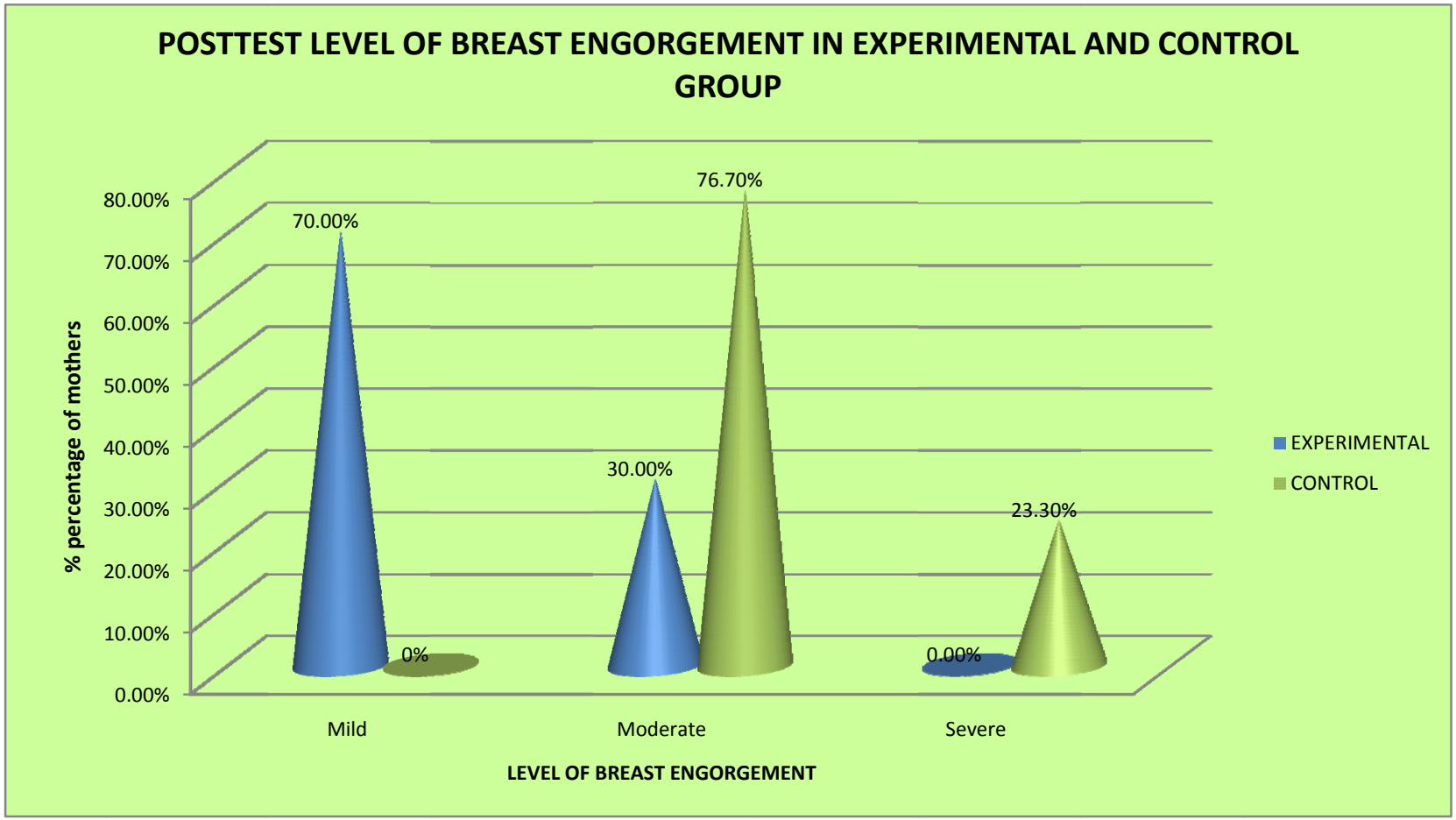
Table 6:

POSTTEST LEVEL OF BREAST ENGORGEMENT ASSESSMENT SCORE

Level of Breast engorgement	Group			
	Experimental		Control	
	n	%	n	%
Mild	21	70.0%	0	0%
Moderate	9	30.0%	23	76.7%
Severe	0	0%	7	23.3%
Total	30	100.0%	30	100.0%

The above table shows , in experimental group after hot & cold application, 70.0% of mothers are having mild level of breast engorgement and 30.0% of them having moderate level of breast engorgement. In control group 76.7% of postnatal mothers having moderate level of breast engorgement and 23.3% having severe breast engorgement.

Figure 11


POSTTEST LEVEL OF BREAST ENGORGEMENT IN EXPERIMENTAL AND CONTROL GROUP
% percentage of mothers
80.00%
70.00%
60.00%
50.00%
40.00%
30.00%
20.00%
10.00%
0.00%
70.00%
0%
30.00%
76.70%
0.00%
23.30%
Mild
Moderate
Severe
LEVEL OF BREAST ENGORGEMENT
EXPERIMENTAL
CONTROL

SECTION - E

Table 7:

COMPARISON OF BREAST ENGORGEMENT SCORE AMONG THE POST NATAL MOTHERS IN EXPERIMENT AND CONTROL GROUP

	Experiment	**Control**	Student's independent t-test
Pretest	20.07 ± 2.58	20.57 ± 2.54	t=0.75P=0.45 DF= 58 not significant
Posttest	9.03 ± 1.19	17.63 ± 2.41	**t=17.50 P=0.001*** DF= 58 significant**
Student's paired t-test	**t=29.58 P=0.001*** DF=29 significant**	**t=11.71 P=0.001*** DF=29 significant**	

In pretest, experiment mothers are having 20.07 score and control mothers are having 20.57 score. The difference is 0.50 score. It is small difference. This difference is statistically not significant. Statistical significance was calculated by using student's independent 't'test. In posttest, experiment mothers are having 9.03 score and control mothers are having 17.63 score. The difference is 8.60 score. Difference is large. This difference is statistically significant. Statistical significance was calculated by using student's independent 't'test.

In experiment mothers, they are reduced their score from 20.07 to 9.03 after the administration of hot and cold application. Due to hot and cold application they are able to reduce 11.04 score from base line. This reduction is statistically significant. Statistical significance was calculated by using student's paired 't'test.

In control mothers they are reduced their pain score from 20.57 to 17.63 after the administration of routine treatment method. They are able to reduce 2.93 score from base line. This reduction is statistically significant. Statistical significance was calculated by using student's paired 't'test.

Table 8:

COMPARISON OF BREAST ENGORGEMENT SCORE BEFORE AND AFTER HOT AND COLD APPLICATION

	No. of postnatal mothers	Pretest Mean±SD	Posttest Mean±SD	Student's paired t-test
Breast engorgement score	30	20.07 ± 2.58	9.03 ± 1.18	t=29.58 P=0.001*** DF = 29, significant

Table no 7 shows the comparison of Breast engorgement score before and after the administration of hot and cold application. On an average, postnatal mothers are reduced their score from 20.07 to 9.03 after the administration of hot and cold application. Due to hot and cold application they are able to reduce 11.04 score from base line data. This reduction is statistically significant. Statistical significance was calculated by using student's paired 't'test.

Figure 12

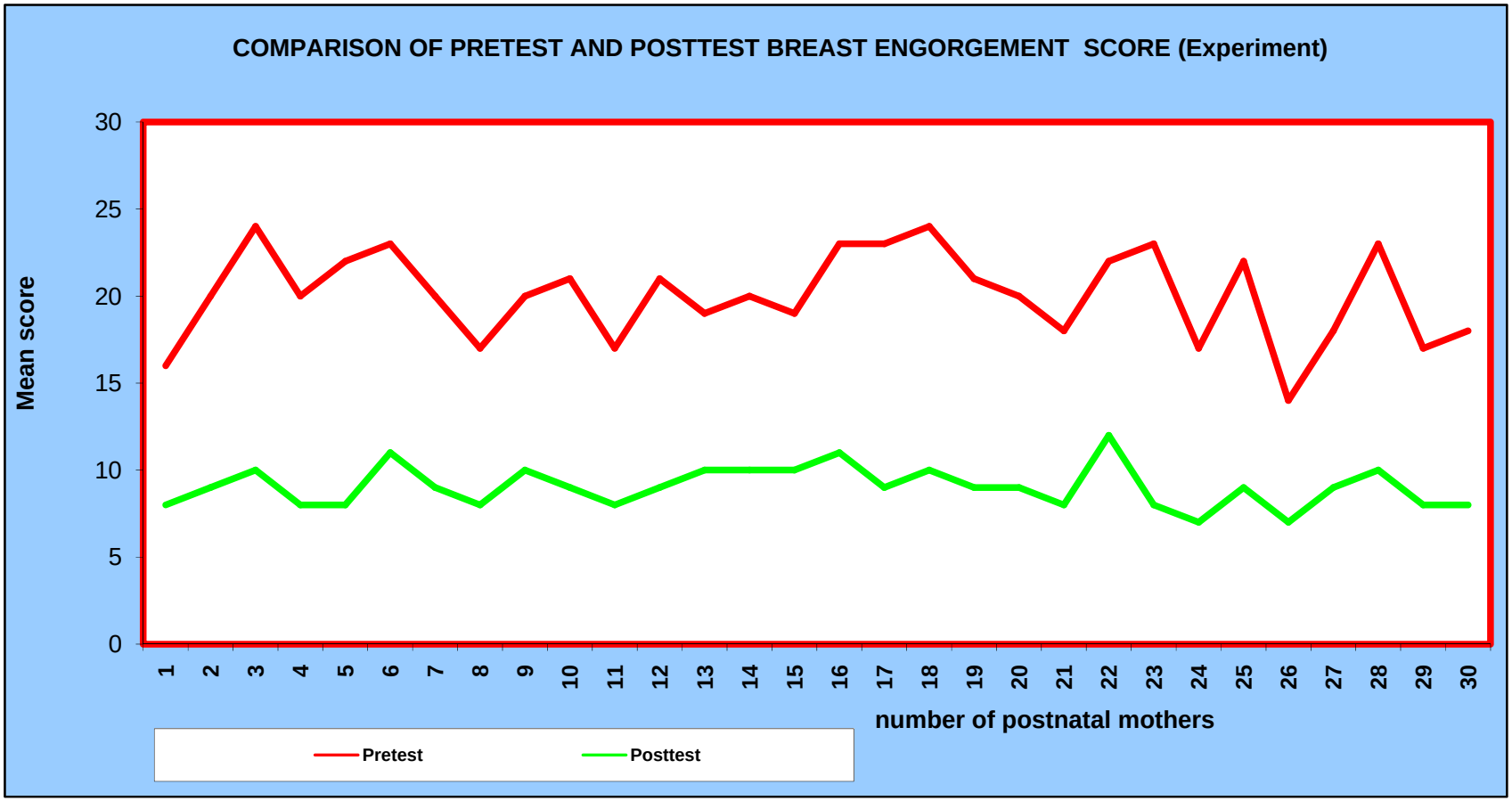

COMPARISON OF PRETEST AND POSTTEST BREAST ENGORGEMENT SCORE (Experiment)
Mean score
30
25
20
15
10
5
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
number of postnatal mothers
Pretest
Posttest

Figure 13

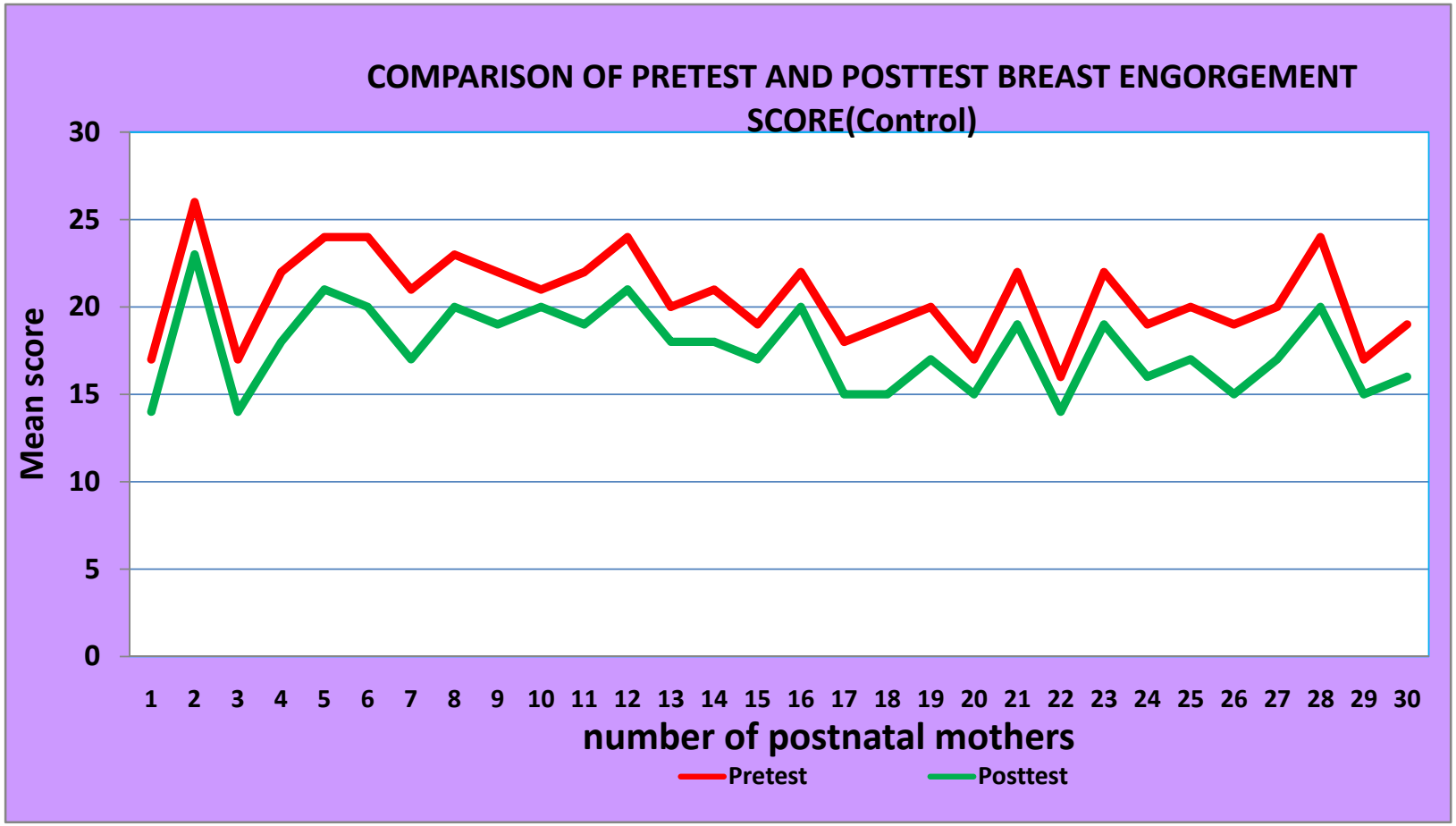

COMPARISON OF PRETEST AND POSTTEST BREAST ENGORGEMENT SCORE(Control)
Mean score
30
25
20
15
10
5
0
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
number of postnatal mothers
Pretest
Posttest

Table 9: EFFECTIVENESS OF HOT AND COLD APPLICATION

		Max score	Mean score	Mean Difference in pain score with 95% Confidence interval	Percentage Difference in pain score with 95% Confidence interval
Experiment	Pre test	30	20.07	11.04(10.27 – 11.80)	36.8 % (34.2% – 39.3%)
	Post test	30	9.03		
Control	Pre test	30	20.57	2.93(2.66 – 3.21)	9.7% (8.8% – 10.7%)
	Post test	30	17.63		

Table no 9 shows the effectiveness of hot and cold application

On an average, in experimental mothers, they are reduced 36.8% of score whereas in control mothers, they are reduced 9.7% score. Difference is 27.1%. This difference is the benefit of hot and cold application. It shows the effectiveness of hot and cold application.

Differences between pretest and posttest score was calculated using and mean difference with 95% Confidence Interval and proportion with 95% Confidence Interval.

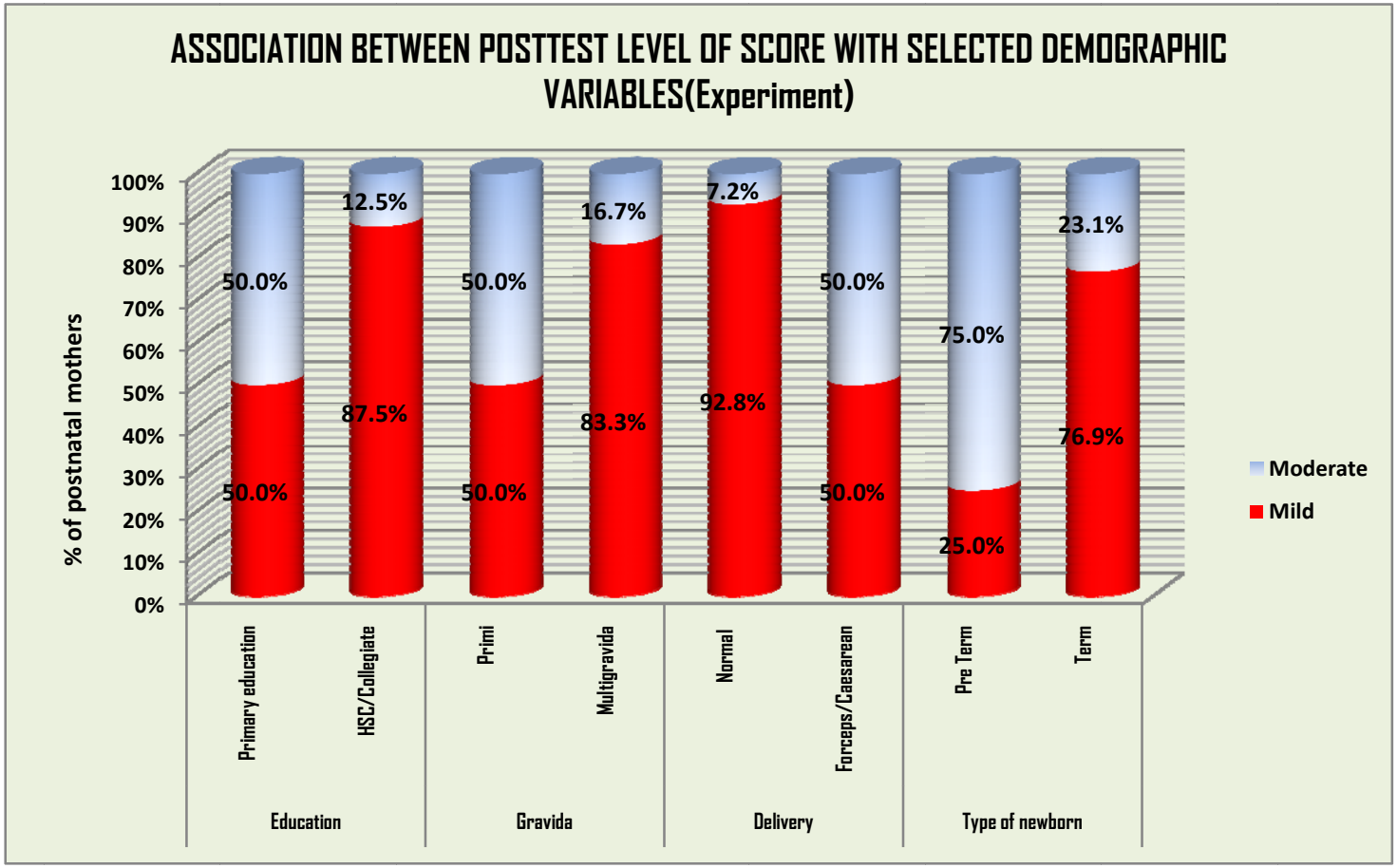
Table 10:

ASSOCIATION BETWEEN POSTTEST LEVEL OF BREAST ENGORGEMENT AND DEMOGRAPHIC VARIABLES (Experiment group)

DEMOGRAPHIC VARIABLE		Posttest level of breast engorgement				Total	Pearson chi-square test/Yates corrected chi-square test
		Mild		Moderate			
		N	%	N	%		
Education	Primary education	7	50.0%	7	50.0%	14	**$\chi 2$=5.00 p=0.02 *DF=1 significant**
	Higher secondary/Collegiate	14	87.5%	2	12.5%	16	
No. of Gravida	Primi	6	50.0%	6	50.0%	12	**$\chi 2$=3.85 p=0.05*DF=1 significant**
	Multigravida	15	83.3%	3	16.7%	18	
Mode of delivery	Normal vaginal delivery	13	92.8%	1	7.2%	14	**$\chi 2$=6.53 p=0.01* DF=1 significant**
	Forceps/Caesarean	8	50.0%	8	50.0%	16	
Type of newborn	Pre Term	1	25.0%	3	75.0%	4	**$\chi 2$=4.45p=0.03* DF=1 significant**
	Term	20	76.9%	6	23.1%	26	

Table no 10 shows the association between demographic variables and their post test level of score..More educated, Term mothers and normal delivery mothers benefitted more than others. .Statistical significance was analyzed using Pearson chi-square test/ Yates corrected chi-square test.

Figure : 14


ASSOCIATION BETWEEN POSTTEST LEVEL OF SCORE WITH SELECTED DEMOGRAPHIC VARIABLES(Experiment)
% of postnatal mothers
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
50.0%
50.0%
12.5%
87.5%
50.0%
50.0%
16.7%
83.3%
7.2%
92.8%
50.0%
50.0%
75.0%
25.0%
23.1%
76.9%
Primary education
HSC/Collegiate
Primi
Multigravida
Normal
Forceps/Caesarean
Pre Term
Term
Education
Gravida
Delivery
Type of newborn
Moderate
Mild

CHAPTER V

DISCUSSION

Breast milk is the preferred method of feeding a newborn because it provides numerous health benefits to both the mother and infant .It remains the ideal nutritional source for infants through the first year of life. Nurses can play a major role in teaching women about the benefits of breast feeding and providing anticipatory guidance for problems that may occur .One of the problem is breast engorgement.

Breast engorgement is a very common problem that start affecting the mother in the first two or three weeks after delivery and is more annoying to women with poor skin elasticity. Engorgement is due to milk excessively filling the breast together with blood and fluid retention in the same area. Usually the breast feels full, hard, tight, tender, painful, and hot to the touch and a fever may develop, the baby may have a hard time to latch on and suck.

Breast engorgement may inhibit the development of successful breastfeeding, leading to early breastfeeding cessation, and is associated with more serious illness, including breast infection. (Mangesi L, Dowswell T, 2010). Breast engorgement may occur due to insufficient emptying of the breast milk from the mother due to poor transfer of breast milk and incorrect latching or positioning of the baby during the process of suckling. (Lawrence R, 2005).

To minimize the breast engorgement this experimental study was done. The purpose of the study is to evaluate the effectiveness of application of hot and cold compress on reduction of breast engorgement among the postnatal mothers at Government Rajaji hospital, Madurai.

Most of the post natal mothers 43.3 % in experimental group & 40 % in control group belongs to age group were in the age group of 26- 30 years. Majority of the postnatal mothers 50.0% in experimental group and 43.3% in control group were Hindus. Majority of postnatal mothers 50.0% in control group and 36.7% in

experimental group were living in suburban area. Majority of post natal mothers 46.7% both in experimental and control group had completed higher secondary education. Majority of post natal mothers 57% both in experimental and control group belongs to joint family and 43% of belong to nuclear family. The available literature was organized under the following headings.

FINDINGS BASED ON THE OBJECTIVES:

The first objective was to assess the level of breast engorgement among the post natal mothers.

The study findings revealed that in pre test the majority of the post natal mothers in experimental group had 56.7% moderate level of breast engorgement, and 43.3% of them having severe level of breast engorgement, where as the control group had 50% mild level of breast engorgement and 50% of them having moderate level of engorgement. On an average, postnatal mothers in experimental group having 20.07 breast engorgement mean score and in control group having 20.57 mean score.

Giuliani ER.(2004) conducted a study to document the breast feeding problem encountered in a rural community and to know the reason for starting top feeds in infants less than 6 months of life . The study concluded that maximal onset of breastfeeding problem like sore nipples, mastitis; breast engorgement was noted in the first two weeks of neonatal period. In the light of the findings of the study, the formation of breast engorgement can be avoided by proper feeding and frequent emptying of breast milk etc.

The second objective of the study was to evaluate the effectiveness of application of hot and cold compress on breast engorgement among the post natal mothers in experimental and control group.

On an average, postnatal mothers are reduced their score from 20.07 to 9.03 after the administration of hot and cold application. Due to hot and cold application they are able to reduce 11.04 score from base line data. This reduction is statistically significant. Statistical significance was calculated by using student's paired 't'test.

On an average, in experimental mothers, they are reduced 36.8% of score whereas in control mothers, they are reduced 9.7% score. Difference is 27.1%. This difference is the benefit of hot and cold application. It shows the effectiveness of hot and cold application.

Differences between pretest and posttest score was calculated using and mean difference with 95% CI and proportion with 95% CI.

Smriti Arora , et al(2008), support study revealed that hot and cold compresses were found to be more effective in relieving pain due to breast engorgement in post natal mothers. The study findings shows that in experimental group the pre test mean score was 5.03,after application of hot and cold compress it was reduced to 2.97($p<0.001$) in postnatal mothers. So the mean post test breast engorgement score was significantly less than mean pre test score in experimental group.

Robson et al (2001, conducted a study to investigate the effectiveness of cold applications to the engorged breasts of breast feeding mothers.In this light of the findings of the study ,cold is a safe and effective modality for breast feeding mothers to use to relieve the pain and degree of breast engorgement. No adverse effects of cold on the amount of milk produced and transferred to the baby during breast feeding were observed.

The third objective is to compare the pre and post test breast engorgement score among the post natal mothers in experimental and control group.

In pretest, experiment mothers are having 20.07 score and control mothers are having 20.57 score. The difference is 0.50 score. It is small difference. This difference is statistically not significant.

In posttest, experiment mothers are having 9.03 score and control mothers are having 17.63 score. The difference is 8.60 score. Difference is large. This difference is statistically significant.

In experiment mothers, they are reduced their score from 20.07 to 9.03 after the administration of hot and cold application. Due to hot and cold application they are able to reduce 11.04 score from base line.

In control mothers they are reduced their pain score from 20.57 to 17.63 after the administration of routine treatment method. They are able to reduce 2.93 score from base line. This reduction is statistically significant.

Shanthi Margoschis, et al (2010), A quasi experimental study to compare the effectiveness of manual expression of milk and warm bottle application in mothers with breast engorgement. Based on random sampling, 30 mothers were studied in each group. a five point analog scale, was used to assess breast engorgement, pain scale for assessment of pain, observational check list for observing breast engorgement. Group I consisted of 30 mothers whom moist compress was applied and then breast milk was manually expressed. Group II consisted of 30 mothers for whom breast milk was expressed with a warm bottle. The comfort of the mother and the degree of breast engorgement relief were assessed before and after the procedure for both the groups. On comparing both methods it was found that mothers in group II where breast milk was expressed using a warm bottle had significant reduction of breast engorgement (p value < 0.01) than the mothers in Group I who had a moist compress application and manual expression of milk. Pain was significantly reduced in mothers belonging to Group I ($p<0.01$) than mothers in Group II.

The fourth objective was to associate the post test breast engorgement score with selected demographic variables among the post natal mothers in experimental group.

Association between demographic variables and education of the mother is significant .There was significant chi –square 5.00, p=0.02. Association with the number of gravid was significant chi-square 3.85,p=0.05, it is significant. Association with mode of delivery significant chi –square 6.53,p=0.01.Association with type of newborn significant chi-square 4.45,p=0.03.

The support study by Moon JL, Humenick (2005), which concluded to identify variables that correlate significantly with breast engorgement such as initiation of feeding, frequency of feeding , feeding duration ,rate of milk maturation , and supplementation. These variables were found to be significantly correlated with breast engorgement.

The study undertaken by **De Olivera L.D et al (2006)** revealed frequencies of exclusive breast feeding and lactating related problems during the first 30 days among 74 mothers who received 30 minutes counseling session on breast feeding technique with 137 controls. The frequency of exclusion breast feeding among mothers who had received intervention was similar to controls by 7 days (79.7% vs. 82.5 % respective) and 30 days (60.8 % vs. 53.3%) There was no difference between groups in the frequency of sore nipple in the breast engorgement and mastitis and in the quality of breast feeding technique at 30 days. Therefore a single intervention at 30 days was not sufficient to improve breast feeding technique increase exclusive breast feeding rates and decrease the incidence of breast feeding problem during the first month.

The support study by **HilIpd, Humenick SS etal (2004),** revealed that breast engorgement for first time and second time vaginal and caesarean delivery breast feeding mothers. Most mothers reported experiencing their most intense engorgement after hospital discharge. Previous breast feeding experience of the mother is a more critical variable than parity in predicting engorgement. Second time breast feeding mothers experienced engorgement sooner and more severely than did first time breastfeeding mothers, regardless of delivery method.

CHAPTER VI

SUMMARY, CONCLUSION, IMPLICATIONS, RECOMMENDATIONS, LIMITATION OF THE STUDY

This chapter deals with the summary, conclusion, study implications, for nursing practice, education, nursing research, administration and recommendations for future research.

6.1.Summary of the study

- Delayed initiation and less frequency of breast feeding leads to breast engorgement which resulted latching difficulty due to sub areola tissue resistance. The experiment aids for reduction of breast engorgement by application of hot and cold compress.

- The study was undertaken to evaluate the effectiveness of the application of hot and cold compress in terms of reducing breast engorgement among the post natal mother at GRH, Madurai and help the babies for normal feeding.

- A formal permission was obtained from the HOD of Institute of obstetrics and gynecology at GRH, Madurai. The data was collected with the help of structured questionnaire and pre test and post test assessment method for a period of four weeks from 1.9.2011to30.9.2011. Random sampling technique was used to select the samples after the investigator explained the purpose of study and obtained the written consent from each post natal mothers .It tooks about 1 1/2hours for each sample to collect the data.

- The conceptual frame work adopted for the study was modified widenbach's art of clinical nursing model. The model helped the investigator in approaching the problem in a comprehensive and systematic manner. Review of related research helped the investigator in the preparation of the conceptual model, tool and methodology of the study.

- The experimental approach was utilized to achieve the overall purpose .The research design used for the study was experimental design .Samples were collected for the study and this continued till the desired size was met .The study was conducted in caesarean ward and postnatal ward in obstetrics and gynecology , MMC, Madurai. Lottery method was used to select the sample .The sample consist of 30 postnatal mothers with breast engorgement for experimental group and 30 for control group.

- The tool was developed and used for the data collection was a structured questionnaire and pretest and post test assessment. Four experts did content validity of the tool for clarity, relevance, comprehensiveness and appropriateness. The tool was found to .be reliable.

- A pilot study was conducted in post natal ward at Institute of obstetrics and gynaecology, Govt Rajaji Hospital, Madurai between 11.6.2001 to17.06.2011 to find out the feasibility of conducting the final study and to determine the method of statistical analysis. The collected data were analyzed using descriptive and inferential statistics.

6.2. MAJOR FINDINGS OF THE STUDY

- With regard to age in the experimental group (43.3%) and in the control group (40%) were between 26-30 years.
- Regarding education, both (46.7%) in the experimental group and in the control group of the mothers had completed higher secondary education.
- Higher proportion of postnatal mother (50%) in experimental group and (43.3%) in control group were Hindus.
- Majority of postnatal mothers (50%) in experimental group and (36.7%) in control group were living in suburban area.
- With regard to type of family most of them (57%) both in experimental group and control group belongs joint family and (43%) of mothers belongs to nuclear family.
- In the experimental group (60%) and in the control groups (56.7%) were primigravida mothers.

- Regarding mode of delivery majority of postnatal mothers (46.7%) both in the experimental and control group had normal vaginal delivery and (40%) of mothers had caesarean section.
- Regarding term of baby (86.7%) in the experimental group and (73.3%) in the control group were term babies.
- Regarding initiation of feeding more than half proportion of postnatal mothers 63.3% in experimental group and 70% in control group had initiated feeding 2hours after delivery.
- More than half proportion of post natal mothers 63.3% in experimental group and 76.7% in control group were developed breast engorgement on third postpartum day.
- In the experimental group (53.3%) of postnatal mothers had fed their babies every 2 hours and 56.7% of mothers in the control group had fed their babies as on demand.
- Majority of post natal mothers 50% in experimental group and 63.3% in control group not given the pre lacteal feeding.
- With regard to position assumed during feed majority of the patients in the experimental group (60%) maintained sitting position and in the control group 66.7% maintained side lying position.
- Regarding duration of feeding, both in the experimental group (83.3%) and in the control group (73.3%) of the mothers had fed 10 minutes every time.
- Both in experimental and control group none of the mothers 100% not used brassiere during hospitalization.
- Majority of post natal mothers 66.7% in experimental group and 80% in control group fed their babies in both breast at each feeding.
- In pre test more than half proportion56.7% of post natal mothers in experimental group had moderate level of breast engorgement in pretest and 43.3% of mothers had severe level of engorgement . In control group half proportion 50% of post natal mothers had moderate level of engorgement and 50% of them had severe level.
- In post test, higher proportion 70% of postnatal mothers in experimental group had mild level of breast engorgement and 30% had moderate level of engorgement. In control group 76.7% of mothers had moderate level of engorgement and 23.3% of them had severe breast engorgement.

- In control group the mean pre test breast engorgement score was 20.07, after routine treatment, it was slightly reduced to 17.63.
- The mean pre test breast engorgement score of the experimental group was 20.57, after administration of application of hot and cold compression it was reduced to 9.03.
- There was significance in post test level of breast engorgement with education, number of gravida, mode of delivery and type of newborn.
- Regarding breast engorgement, there was a significant difference between pre and post test score among experimental group (t=29.58,p=0.001).

6.3. CONCLUSIONS

The following conclusions were drawn from this study. The present study evaluated the effectiveness of application of hot and cold compress on reduction of breast engorgement among postnatal mothers at GRH, Madurai. The study revealed that the level of breast engorgement had been reduced from severe to moderate and moderate to mild level. The mean post breast engorgement score in experimental group was lower than mean post test breast engorgement score in control group. Hence the investigator concluded that application of hot and cold compress was highly effective in terms of reducing breast engorgement. There was a significant association between post mean breast engorgement score and education, number of gravida, mode of delivery, and type of newborn.

6.4. IMPLICATIONS

The investigator had drawn the following implications from the studies which are vital concern in the field of nursing practice, nursing education, nursing administration, and nursing research.

NURSING SERVICE

Using current research findings nurses can use hot and cold compress in reducing breast engorgement. So the nurses should have adequate knowledge about non –pharmacological methods of pain relief and to make them understand the benefits and practice of new methods.

- It can be done as an independent nursing practice.
- Application of hot and cold compress is a cost effective method, which is easily available, easy to apply and has no adverse effects.
- It is non invasive, comforting and greatly appreciated by recipient.
- Nurses can use this as a means to comfort mothers with breast engorgement and encourage this practice among all post natal mothers.

NURSING EDUCATION

- As nurse educators we must strengthen the concept of non –pharmacological methods to reduce the breast engorgement problem as an integral part of nursing curriculum for undergraduate and postgraduate programme. The use of non pharmacological measures like application of hot and cold compress can be easily incorporated in nursing education along with other nursing interventions.

- Nurse educators must encourage the students to learn about the assessment and identification of breast engorgement in an accurate manner. They should promote comfort and reduce the breast problem

- Nurse educators can encourage student nurses to implement application of hot and cold compress in postnatal areas where it is not being practiced.

- The nursing education curriculum must provide adequate clinical exposure of students in needed clinical areas.

NURSING ADMINISTRATION

- The nurse administrator should take the initiative in organizing the continuing educational programme on management of breast engorgement for the nursing personnel in the hospital and community settings, with modern technological video aids to gain adequate knowledge about the application of hot and cold compress.

- The nurse administrator should supervise the nurses, for the application of hot and cold compress in postnatal ward for the mothers with breast engorgement and also monitor the standards of practice to promote excellence in nursing care.

NURSING RESEARCH

- Nurse researchers should encourage clinical nurse to apply the research findings in their daily nursing care activities and can bring out new innovative procedures to reduce the breast problem.

- She should motivate the clinical nurse to do further research studies on effectiveness of application of hot and cold compress to minimize the breast problem.

- She should conduct periodic review of research findings and disseminate the findings through conferences, seminars and publications in professional, national, and international journals and in the worldwide.

6.5. RECOMMENDATIONS

The study recommends the following for further research in

- ❖ Replication of this study in larger sample in different settings will strengthen the findings.
- ❖ Similar study can be done with quasi experimental design.
- ❖ Duration and frequency of the therapy can be extended
- ❖ The comparative study can be conducted between various alternative complementary methods to reduce the breast problem in the puerperal period.

6.6. LIMITATIONS

- The study is limited to postnatal mothers with breast engorgement who were participated in the study.
- The data collection period was limited to 6 weeks.

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